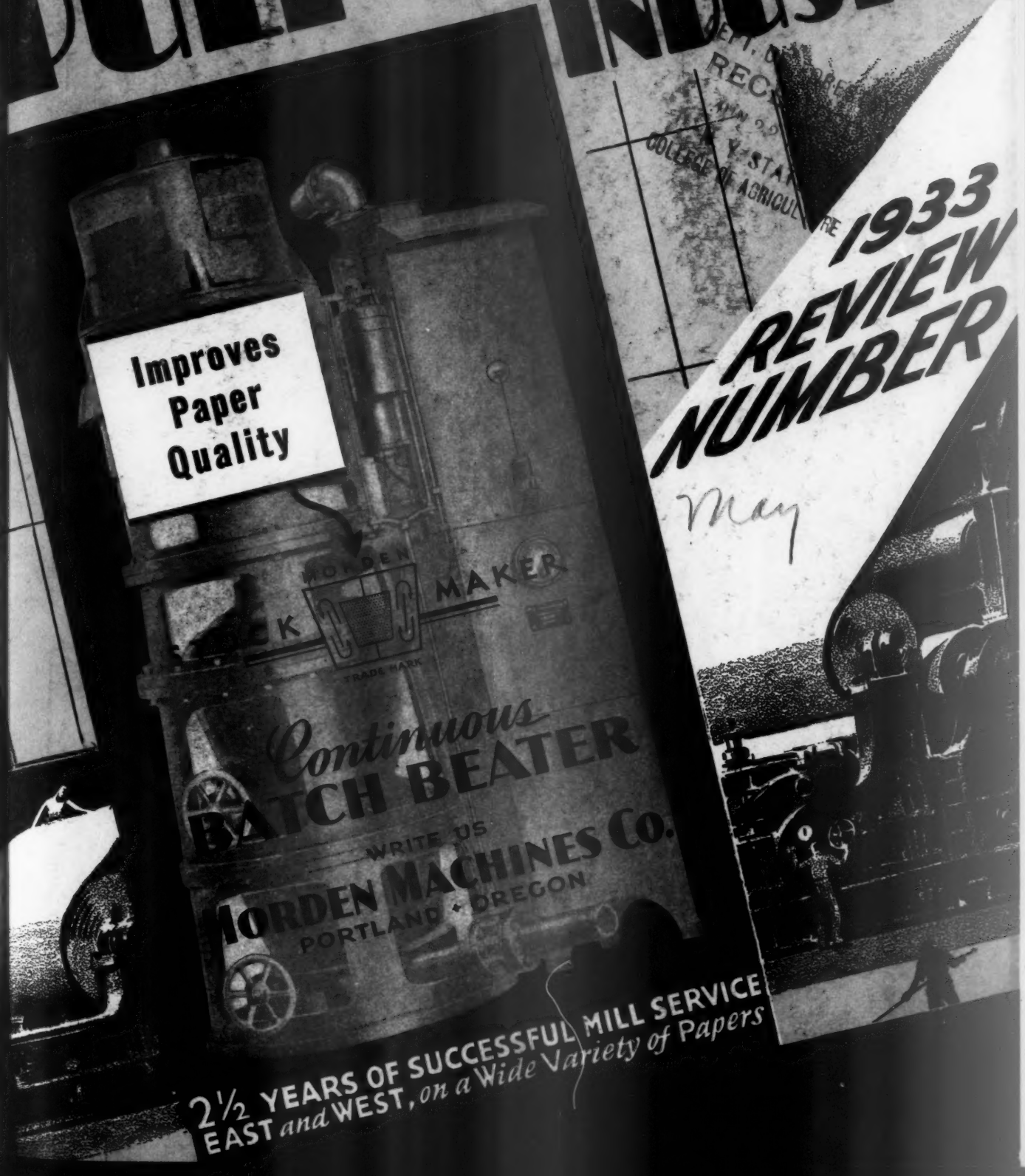
PACIFIC PULP & PAPER INDUSTRY



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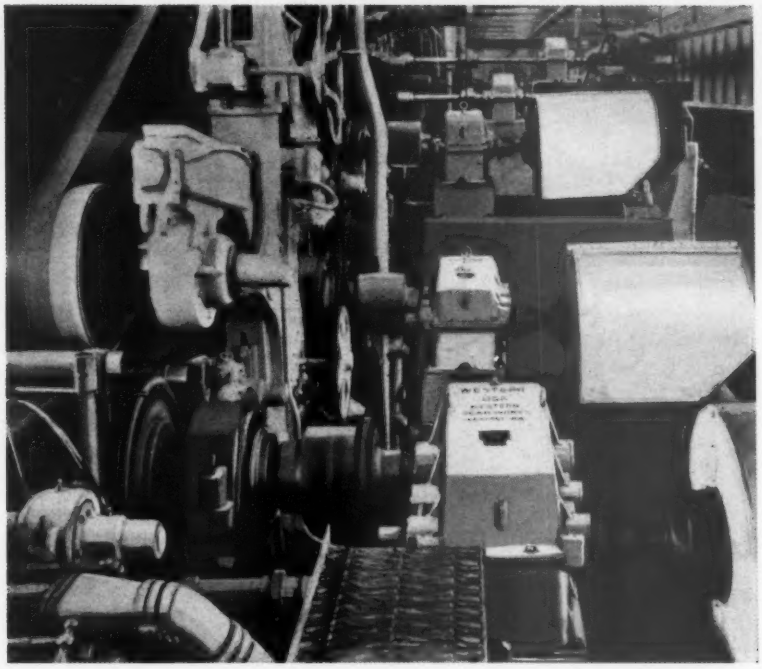
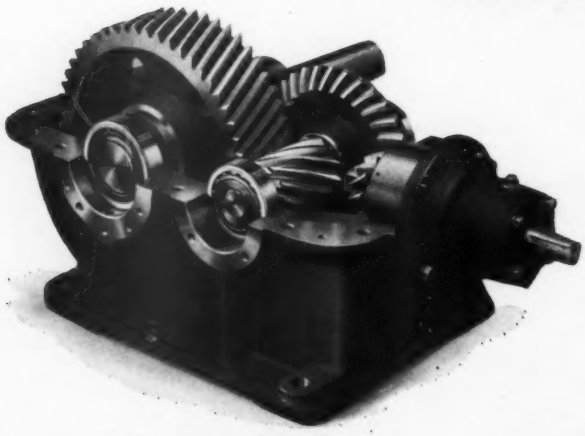
Ten WESTERNS Driving a Minton Vacuum Dryer Paper Machine



FOR SMOOTH, DEPENDABLE POWER— WESTERN SPEED REDUCERS



View of the interior of one of the types of WESTERN Speed Reducers

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REVITALIZING THE INDUSTRY ON A PERMANENT BASIS

The pulp and paper industry of the United States is at an economic crossroads. One way leads to the development of a permanent industry capable of supplying our domestic market to the maximum of its capacity. The other way leads to ultimate stagnation and collapse of the domestic industry, with increasing dependence on foreign nations for one of our most important products of consumption.

A permanent industry is based primarily on a permanent market. In the United States we have the largest permanent market for paper and allied products in the world. One would naturally suppose that as this market grew, so would the domestic producing industry. The facts prove otherwise. Growth in American paper consumption in the past few years has chiefly brought increase in imports, rather than expansion of domestic production.

Imports Treble in 10 Years

Last year United States production was about the same as it was in 1920; imports were nearly three times those of 1920. The present trend is toward continued loss of our domestic markets to foreign producers, a continuation of which will force further contraction of our industry and bring greater domination by foreign sources of supply.

The desirability of the United States revitalizing its pulp and paper industry and creating a permanent domestic industry which can supply our entire requirements, based on home grown forests, can be unquestioned. We must do that, or we must sacrifice the industry to foreign producers. Of the two alternatives there can be little doubt of the choice.

The picture presented by continued and increasing dependence on other nations for our paper is not a pretty one. The raw material is beyond our control and cannot be depended upon indefinitely. Forests in the Scandinavian countries are being overcut. The eastern Canadian industry is reaching the limit of its expansion. Ultimately there is certain to be a world wide shortage of paper making materials, costs will rise, exports will be limited by the foreign suppliers. In the meantime, our own American industry will have continued to stagnate and we will be in no position to meet our own needs for paper.

Our only course is to build our own industry upon a basis of permanent development, to intelligently use our forests now so that they will be producing our pulp wood requirements 50 or 100 years from now. This cannot be done by locking up our wooded lands and holding them for future use long hence. Matured timber should be cut to make way for new growths, before it decays and loses its value.

A start in the right direction is now being made under the national reforestation plans being carried out. It should be remembered, however, that the value of this work will in the last analysis be gauged by the commercial value derived in converting the forests into useful commodities. The timber will be valuable for the manufacture of pulp and paper, provided we have not in the meantime scuttled our industrial ship, and provided we have sufficient plant facilities available.

It is true that the question of attaining independence in supplies of pulp wood, pulp and paper rests fundamentally upon the feasibility of producing these products as cheaply as they can be imported. This can be done, but only if the industry is not subjected to the unbalancing effects of depreciated currency competition, forced labor competition, etc.

U. S. Has All Essential Materials

The United States is possessed of all the essentials in paper making in greater quantity and variety than any country in the world. We have an abundance of forest land and pulp species. Our mineral deposits are sufficient for our needs and include all of the required materials, sulphur, limestone, alum, rosin, clays, bleaching chemicals, etc. Cheap water power is available in enormous quantity for generation of electricity; our coal deposits assure as much supplementary power as needed.

The raw materials are at hand, the market is at hand. Why then should not they be used to an intelligent maximum, furnishing a permanent industry and permanent employment? Unless so used enabling the development of a permanent industry not subjected to present stifling influences, we are certain to find ourselves buying our paper at dictated prices from outside sources, excessive prices resulting from world competition.

It takes time to build a permanent, stable industry. It is not only the matter of building plants, but of assuring permanent supplies of raw materials. All except timber are definitely available for all future requirements. Only our forests may be some time lacking in sufficient production. Standing cordwood timber now seems plentiful, yet we must be mindful of the experiences of the European and Scandinavian countries, and of our own eastern and Lake states. Depleted forests require many years to renew.

Industry Must Be Protected

It is obvious that the industry must be protected from unfair competition on the part of influences inimical to the development of the American industry. This is a governmental function which must be demanded. The industry must be allowed to stand on its own feet, to prove its right to its own domestic market by force of efficient operation, unhampered by unnatural competition.

This done, the industry may then be revitalized by sensible expansion to the extent justified by obtaining a fair share of the home market. This will necessarily mean greater and more intelligent utilization of our forest resources.

According to figures published by the Forest Service in 1933, the stand of the principal kinds of wood now used in pulp and paper manufacture amounts to 1,830 million cords. The report goes on to say that "thus it appears that for the United States as a whole the present stand of softwoods suitable for pulp is 280 times the normal annual pulpwood cut, and of hardwoods over 800 times the cut. In spite of this, we import more pulpwood, or its equivalent in wood pulp and paper, than we cut in our own forests." This constitutes about one third of the gross volume of all commercial forest material in the United States.

The Forest Situation

A good view of the forest situation will be obtained by quoting from a recent report on the subject

by the Timber Conservation Board, which says:

"From the public standpoint, questions of primary importance are: a. Is the forest producing capacity of the United States, including existing timber supplies, adequate to meet present and prospective requirements for forest products? b. Is full advantage now being taken of this forest producing capacity?

"The answer to the first question is in the affirmative; to the second in the negative.

"The present commercial forest area in the Continental United States aggregates 496 million acres, estimated to contain approximately 487 billion cubic feet of saw timber, cordwood, pulpwood and other commercial forest products.

Problem Not One of Shortage

"The present forest problem in the United States is not one of timber shortage but of the proper protection and management of our forested areas, including adjustment of production of forest products between and within the forest regions to secure best results from existing forest growing stock. The area now covered with commercial forests and likely to remain available for that purpose, if given ample protection and management, is more than sufficient to meet any probable future demand.

"Insofar as wood can compete, pulpwood consumption tends to follow paper consumption. Since paper consumption tends to decrease in its rate of increase, pulpwood use will follow except as it may be needed in other products. Although the use of woodpulp in cellophane, rayon and plastics and in other products of similar character is important from the point of view of the commodities produced, the wood requirements are as yet practically insignificant in the national wood use. Experience indicates that a far greater and wider use of pulp for such purposes is needed to affect the national timber supply.

"Imports of pulpwood vary from year to year but have a consistent upward trend. The quantity of wood used to supply the United States with paper doubled from 1919 to 1929, but only one-third of this expansion was supplied by our own pulp and pulpwood industries.

Keeping Industry at Home

"However, this growth in imports has not affected, and is not likely to affect, our paper consumption. Considering the development of new pulpwood regions and species, both in this country, and in foreign countries, it may possibly be said that pulp resources have increased even faster than requirements. At present there is no indication of a future shortage of paper, in the problem of keeping the pulp industry at home. To what extent the industry can be kept at home is a question that will have considerable bearing on what our future pulpwood requirements will be."

Thus is the old Pinchot theory of hysterical fear for our forests disposed of, although unfortunately it still has influence in some quarters. These recent forest surveys show that we may proceed to revitalize our forest industries, particularly pulp and paper, without fear of depleting our timber resources.

The plan for a permanent industry must, however, include provisions for maintaining a sustained yield from our forests. Present plans being formulated for the protection and management of the forests must be continued. The taxation problem, now the subject of an investigation, must be solved to relieve the liquidation pressure on private timber owners.

With adequate assurance of permanent supplies of raw materials, sufficient power for manufacturing facilities, and a ready market available, the American pulp and paper industry is in a position to develop further, commensurate with good judgment.

Government Consideration Needed

This permanent development, so desirable from the national standpoint, can only be justified, however, if the industry receives the support of the government in throwing off the shackles of unnatural foreign competition and economic sabotage from within our own borders.

The industry need not ask preferred treatment for itself, but it should demand that foreign nations be not given preferred treatment in our markets. The situation in the last 20 months has amounted to that, since was started the economic drive against the United States with depreciated currencies. Since our abandonment of the gold standard the situation has somewhat improved, yet our domestic industry still labors under a severe handicap. The present foreign trade advantage must be corrected and never allowed to be repeated.

A Unified Industry

Through the proposed industry control plans, the domestic pulp and paper industry should be unified for control of the domestic market, subject only to normal, legitimate competition. It should unite in one voice demanding from the government the consideration and protection merited by one of the nation's largest and most important industries.

The industry should ask only the measures necessary to provide opportunity for sensible development of a permanent industry furnishing permanent employment, a permanent supply of domestic pulp and paper and permanent intelligent, maximum utilization of our forest resources, but it should ask these in no uncertain terms.

The forest problem is primarily one of proper management of timbered areas as they are logged off.

— ALASKA —

Its Future in Pulp and Paper

Water power and timber go hand-in-hand in Alaska

When Vitus Bering sailed from Avacha in 1741 and discovered Alaska, a goodly part of this virgin territory was covered with fine forests. Today, nearly 200 years later, this timber is still practically untouched. It constitutes a tremendous reservoir of pulpwood, still undeveloped, although the greater part of the timber—about three-fourths—is mature and overmature.

The resources represented by these southeastern Alaska forests present a different problem than do the resources of coal, gold or oil. The only way to conserve the latter is to refrain from using them. The only way to conserve the forests is to utilize them properly before they become too old and decay, and to allow them to renew themselves through regrowth.

As a nation pledged to conservation of its natural resources, the early utilization of Alaskan forests is of particular interest to the American people. The important question is not how long can we refrain from cutting them, but how soon we can begin to use them, and in what products will they best serve us?

There is only one answer. Our Alaskan forests can be used at any time from the present on, as soon as commercial development will be profitable. They can best be used for one major purpose only, the manufacture of pulp and paper, particularly newsprint.

On the debit side of the ledger we see lack of present profit opportunities and distance from consuming markets. But on the credit side we find abundant raw material, tidewater transportation both from the woods to mills and from the mills to world markets, tremendous industrial waterpower resources, a year-round operating and shipping season.

Southeastern Alaska is primarily a timber producing region, with only about one per cent of the total area of 22,738,000 acres suitable for agricultural purposes. Practically all of the standing timber in this area is included in the Tongass National Forest, in which there are 78,500,000,000 board feet of commercial timber on 3,000,000 acres of national forest land considered as commercial land.

Of the commercial timber, 74 per cent is Western hemlock and 20 per cent Sitka spruce, both fine species for pulp and paper. Because of the large volume of hemlock and the scattered stands of spruce, it is not well adapted to sawmill development.

Western hemlock has been well established as a valuable species for pulp and paper manufacture in the Pacific Coast states, giving a large conversion value of quantity and quality. The Forest Products Laboratory gives the average output of pulp per cord of 100 cubic feet of solid wood as 2,160 pounds of bone-dry mechanical pulp, and 1,050 pounds by the sulphite process.

Sitka spruce compares favorably with the eastern white spruce, and is one of the best pulping woods, producing 2,100 pounds of dry mechanical pulp per 100 cubic feet of solid wood and 1,080 pounds of sulphite pulp. While it is valuable as lumber, little competition between the pulp mill and sawmill is likely to develop in Alaska because of the mixed stands with a preponderance of hemlock.

These forests will be logged clean, leaving only necessary seed trees. The Forest Service estimates that second growth of commercial size will be available in from 85 to 100 years after the original cutting, and that the second stand will not only contain a much larger percentage of the more desirable spruce, but will also contain a volume per acre of at least twice that of the present virgin forests. The logging season is generally considered as extending from April to December, inclusive, but in most localities, winter logging is entirely practicable.

About 75 per cent of this timber is within 2½ miles of tidewater, assuring economical transportation from the woods to the mill.

Can Produce One Million Tons Newsprint Annually

According to conservative government figures, southeastern Alaska alone has a sufficient stand of commercial virgin timber, easily accessible, to provide 1,500,000 cords of wood of 600 board feet each year in perpetuity. A production of not less than 1,000,000 tons of newsprint per year is assured without ever depleting the forests in this region.

Ninety-eight per cent of the timber in this area is controlled by the Federal government, which has pledged itself to the utilization of the forests for the development and maintenance of a permanent pulp and paper industry.

Pulp timber allotments are laid out adjacent to water power sites, of sufficient size to guarantee a permanent source of raw material. The prices specified for stumpage vary with species, type of stand, accessibility, etc., but in general are very low. Pulp timber contracts provide that rates are not subject to change until after the first ten years of operation, after which they may be readjusted at intervals of five years. However, except on bid of the purchaser, the adjusted prices at no time may be set at a price that would make paper produced in southeastern Alaska cost more at the consuming centers than similar paper produced on any other section of the Pacific Coast.

In the past few years several pulp timber contracts and licenses for water power development have been authorized for proposed Alaskan pulp and paper mills, although construction has not been started. These contracts, which have been extended, provide for 5,000,000,000 board feet of timber each, with a cutting period of 50 years.

Water Power Resources

Water power resources are abundant in southeastern Alaska, and most of the sites are adjacent to timber and especially suited for power development for the manufacture of pulp and paper. Surveys have disclosed about half a million horsepower available for this purpose, in sites running up to 32,000 horsepower in one unit. In some localities several sites are available within a short radius, say ten miles, from which power could be concentrated at one point, providing a total of 75,000 horsepower if required.

Many of the sites have high lakes only a short distance from tidewater, giving high head developments, water storage facilities, small drainage basins with heavy run-off, short conduits, short power-transmission lines, and proximity to navigable waters. On an average, conduits would not be more than 1½ miles long. The cost per horsepower of hydroelectric development is estimated to be very low.

Most of the projects of comparable nature in eastern Canada have been taken up and developed, and the timber available will not permit of very extensive future expansion. The next natural region is Alaska, which offers opportunities unparalleled in nearly every phase. Lack of profit possibilities because of unsettled conditions in the last few years have retarded development, as well as opposition from "internationalists" whose foreign interests might be jeopardized by further development of the industry on American soil.

Nevertheless, with its tremendous advantages in cheap and plentiful timber and water power resources, its proximity to world markets with low-cost water transportation, Alaska is certain to loom large in the future as a pulp and paper producing center.

HAN-D-PAK TOWELS

St. Helens Pulp & Paper Co. has brought out a new towel specialty. A packet of 150 towels is packaged in a paper box, which is so designed that it can be hung upon the bathroom or kitchen wall and the towels used from it as from a metal container, being folded one into another. Trade name of the package is Han-D-Pak. It retails for 15 cents.

A display of the diversified specialties of St. Helens Pulp & Paper Co. was exhibited in April at the Meier & Frank Co. store, Portland, during Oregon products days. Among the recent additions shown were bags for French bread and bags for doughnuts. The plant is making colored kraft bags. Other items displayed were shelf paper, envelope and wrapping kraft, various other bags and butcher paper.

A timbered valley along a Southeastern Alaska coastal river

THE SPRING MEETING OF THE PACIFIC SECTION OF TAPPI

The Spring convention of TAPPI at Longview, viewed in retrospect yet without the first flush of post-convention enthusiasm, stands out as a prominent milestone in the progress of TAPPI on the Pacific Coast.

In a year of business depression, in the midst of a period of crisis, when one might logically expect members to stick close to their knitting at home, the Pacific Section meeting brought forth a larger turnout than ever before in the history of the western organization.

The natural result was a quickening tempo of the sessions, a flood of open forum questions and answers, a fast moving program that held the attention and sharpened the wits of all those in attendance.

The large and representative gathering was not the only factor in the success of the convention. Giving credit where credit is due, it is only fair to say that the responsibility for making the sessions worth-while was ably carried by three men who did nearly all the work—Bob Heuer, convention chairman; Ralph Hansen, chairman of the Pacific Section, and Al Quinn, secretary-treasurer. Despite their modest protests, these three musketeers arranged and carried through the program with a zest that infected the entire group.

The First Session

An unscheduled pre-convention program opened festivities at the Monticello Hotel Thursday night as the delegates arrived one by one. Officially, a start was made Friday morning, May 5, when registrations were opened. At 9:30 Chairman Ralph Hansen called the opening session to order with a warm welcome to the members, and introduced TAPPI's Coast member on the National Executive Committee, Ben Larrabee, who brought the good wishes of the national association. With him was Raymond Hatch, charter member of TAPPI and a past national president, a recent Coast arrival who is in charge of research for the Weyerhaeuser Timber Co., pulp division.

Mr. Hatch told of the last spring meeting of New York, and said: "There is great interest by the Eastern sections of TAPPI in the western industry. They all realize the importance of the field, and recognize the great present and future development on the Coast. They are intensely interested in the work here, and for that reason plan to hold the 1934 Fall meeting on the Coast."

He described the organization of the national association as being built on service and assistance to members. They now have in preparation a loose-leaf book to contain facts on all standard practices adopted by the association, he said, and he urged members to take full part in the work in order to get full benefit from it.

Preliminaries over, the first paper of the day was presented by N. W. Coster, chemist for the Puget Sound Pulp & Timber Co., Everett, whose subject was "Cellulose Viscosity and Its Use in Mill Control". His discussion pointed out the desirability of using the cellulose viscosity tests for the grading of pulp, and to aid in holding to a standard, further stating that a rapid and reliable method of determining cellulose viscosity should be worked out in place of the long process now employed.

Stock Refining

Following a short general discussion of this subject by members, a paper entitled "Two-Stage Continuous Batch Beating and Automatic Beater Room Operation" was given by C. W. Morden, president of Morden Machines Co., Portland. The paper, which dealt particularly with the new two-stage STOCK-MAKER, is printed in full elsewhere in this issue.

The question of beating and refining of stock brought forth a great deal of comment and inquiry. It was asked whether sizing could be done in the STOCK-MAKER, to which Mr. Morden replied that usually a beater is employed with the roll brushing lightly, after which the stock goes through the new type beating unit. As to how the operation of the machine is governed, he told how it is possible to determine the proper adjustment through preliminary tests by which the power input is set and the machine adjusted on the proper schedule. The machine is flexible and can be quickly set for various conditions.

Getting into the matter of paper tests, it was asked if it is true that with an increase in fold or mullen, tear decreases. The answer was yes, that in general, increases are as: fold 96; tear 22; tensile 22; mullen 10. To explain why tear decreases when mullen and fold decrease, it was pointed out that a typical property of pulp is that when maximum treatment for mullen and fold is given, it gives an over-treatment for tear. Harold Hauff of Weyerhaeuser's, expressed the opinion that mullen and fold are not affected as much by length of fiber as by the brushing out of the fiber, but said that when fibers are cut, as is done in long beating, tear and tensile decrease.

Hydration Discussed

This brought up the subject of hydration, and J. V. B. Cox of Paper Makers Chemical Co. asked how chemical hydration affects the beating treatment. Ray Hatch said that the action in beating is mainly one of brooming, and there is little chemical reaction in the beater. Mr. Morden added that hydration is also due to surface absorption of water by the fibers.

Here Ralph Hansen presented a poser—when pulp is shipped at 96 per cent air dry and is en route or stored several months until it reaches 102 per cent air dry, strength tests show different results and the water content cannot be put back in by agitation of the pulp in water: why? Considerable discussion was brought out, which was summarized by N. W. Coster's answer that it is because the fibers harden and can only be put back in condition by careful beating, in order to get the same strength.

At the noon luncheon nearly a hundred members were present, an unusual showing for so early in the convention. The luncheon was featured by vocal solos by H. A. De Marais of the General Dyestuff Corporation, whose fine voice contributed greatly to the pleasure of all.

Friday Afternoon

Opening the afternoon session, M. L. Edwards, chief engineer of

RALPH HANSEN

the Bingham Pump Co., discussed "Hydraulics for the Paper Mill Operator", touching on the physical laws involved in hydraulic pump problems and paving the way for the open forum which followed. During the course of his talk he displayed a series of humorous drawings to illustrate the points he made.

One of the questions asked was whether or not it would be well to have a feeder such as a worm screw, for use in pumping stock with a centrifugal pump. Mr. Edwards replied that the greatest difficulty in feeding pulp to the pump is air trapped in the pulp. The value of a worm feeder depends on the head and other factors. The feeder should not be necessary with sufficient head.

With respect to pulp friction in pipes, Mr. Edwards said that he believes hydraulic friction between pulp and pipe is the same at all velocities and consistencies.

Next came B. W. Sawyer, the silver-tongued Foxboro man, who gave a lot of information on "Instrumentation". In the ensuing open forum, in response to a question as to why it is necessary to know whether the bulb is to be above or below the instrument, he said that it is necessary only in vapor tension type instruments which have to do with hydrostatic head on the instrument. He told the audience also that if a recording thermometer is tested at two points, it is ordinarily safe to assume that it is correct between these points.

To another question — why are vapor pressure thermometers preferred to gas-filled instruments—he replied that they are more rugged and powerful. Why control a sulphite digester by steam flow instead of temperature? Because of the elapse of time between starting the cook and the rise of temperature to a point where it can be recorded and controlled, said Mr. Sawyer.

Moisture Measurements

"Moisture Content Measurements" was covered in a paper read by Harold Hauff of Weyerhaeuser's, prepared by him and T. E. Heppenstall, engineer of the Long-Bell Lumber Co. He described and demonstrated the use of an electrically operated moisture testing machine developed by Mr. Heppenstall along the lines of the successful machine used for lumber. In the open forum, in which a number of questions were answered, Mr. Hauff said that the ash content in pulp does not seriously affect the instrument, because it is more susceptible to moisture than to mineral matter. It was his opinion that the new device would not completely replace the bone dry tests as it probably is not quite accurate enough, although its operation is very rapid.

One of the most interesting papers presented at the session was that on "Modernizing Paper Mill Equipment with Chromium", given by A. F. Francis of the Chromium Corporation of America. He told of results obtained in many mills by the use of chromium plating, particularly with respect to screens, suction boxes and rolls.

In discussing "Lubrication", R. D. Sollars, lubrication engineer of the Associated Oil Co., started at the power plant and wood mill, and went through the pulp and paper plant from start to finish, speaking of the factors to be considered in lubricating each unit. Before he was through, questions of all descriptions were being put to him, and as the meeting broke up about six p. m. one of the members pursued him down the hall to get some advice about his automobile which was using a bit too much oil.

Gay Dinner Party

The ballroom was the scene of a festive party Friday evening, when the crowd gathered, 175 strong, for the dinner dance. The whirl was merry until midnight, with entertainment features inserted here and there. There were many ladies present, for the wives of TAPPI members have heard in the past of the gala time provided by the social calendar, and would not be left at home. And there were many men who came alone and so thoroughly enjoyed themselves that they got busy on the phone and told the better half to pack up and come down the next day for the final banquet.

A. S. QUINN

Next morning, Saturday, an even larger crowd was on hand for the technical session. This was a joint meeting with the Oregon section of the American Chemical Society, a new departure in TAPPI procedure. With the usual snap, Chairman Hansen got the meeting right down to business and introduced J. E. Goodwillie, engineer of the Beloit Iron Works.

Mr. Goodwillie spoke on "Developments in Design of Modern Fourdrinier Paper Machines". Starting at the head box, he described the latest improvements in these machines, mentioning particularly the new slice, the shake for the table roll section, developments in suction boxes, the improved top press roll mounting in the press section, the motor operated stretch device for each press section felt, the new chain drive for the dryer section, new features in calendar stack, reel and rewinder design.

In concluding, Mr. Goodwillie described the solvent sizing process being used at the Longview Fibre Co., developed by the Beloit Iron Works and the Minton Vacuum Dryer Corp. In this process the stock is prepared without sizing, the sizing being done on the form sheet with a solvent sizing solution. The solvent is driven off in the dryers, and leaves the sizing on the sheet. More than 99 per cent of the solvent is recovered for re-use. It is felt that this system is better than putting the sizing in the beater.

Chemical Topics

Dr. C. S. Keevil, Department of Chemical Engineering of Oregon State Agricultural College, discussed "Recent Developments in the Theory of Drying". He explained how the rate of drying decreases as the surface becomes partially dry.

When the moisture content becomes low, the moisture evaporates on the surface of the material, or even within the solid, he said.

There are three stages of drying, Dr. Keevil pointed out—first, the very wet stage with constant drying rate; second, the slower drying period as the moisture decreases; and third, the final falling rate of drying at very low moisture content, when internal diffusion is the controlling factor.

"Adsorption Phenomena" was the topic of Dr. Leo Friedman of the same college. His paper was a technical discussion of the subject, but in addition he spoke extemporaneously, making the matter clear to all. Some confusion exists as to the difference between adsorption and absorption, he said. He defined adsorption as the concentration of a material from solution at the surface of a material's units, or fibers; absorption is the taking up of a material by its actually penetrating the fiber itself.

A very technical paper on "The Determination of pH" was read by Dr. A. H. Kunz from O. S. C., covering the subject in all its ramifications.

Concluding the sessions, the business meeting of the TAPPI group was held. The nominating committee, composed of C. W. Morden, Myron Black and Earl Thompson, reported in favor of postponing the election of a new vice-chairman to replace Ray Schadt who had resigned, due to the fact that it was felt advisable to consider the matter at length, since the new vice-chairman would become chairman when the national convention is held on the Coast in 1934. The view of the committee was upheld.

The national organization was officially tendered an invitation to hold the 1934 Fall meeting in the West. The executive committee is to name the place later, with the approval of the national office.

The morning meeting ran overtime, so full it was, and when adjournment was made, no time was lost in getting to the joint luncheon with the ladies. J. B. Woods, forester of the Long-Bell Lumber Co., had been unable to appear on the program the preceeding day, so spoke to the assembly on "A Permanent Supply of Pulping Woods in the Pacific Northwest". He presented an attractive picture of the tremendous reservoir of raw material on the Pacific Coast.

Saturday afternoon was devoted to golf and to mill visits. The weather was anything but balmy, so only a few hardy souls ventured on the links, and most of them returned like Arctic explorers. Most of the rest of the men visited the Weyerhaeuser, Longview Fibre and Pacific Straw Paper & Board mills, being shown through the entire plants by competent guides.

More Social Events

The grand banquet took place Saturday evening. Originally it had been planned as a dinner dance, but when about 200 people appeared, dancing was postponed until the food had been stowed away. There were no speeches, but Ralph Hansen introduced a few of the notables, all past officers of TAPPI or the Oregon section of the American Chemical Society. They included Mr. and Mrs. B. T. Larrabee, Mr. and Mrs. R. S. Hatch, Mr. and Mrs. R. S. Wertheimer, Mr. and Mrs. C. W. Morden, Mr. and Mrs. A. S. Quinn, Mr. and Mrs. H. R. Heuer, Dr. C. H. Johnson, F. L. Hooper and Dr. J. P. Mehlig.

For the ladies, an interesting social program was provided which kept them busy during the business sessions. On Friday a tour up the Ocean Beach Highway, a beautiful stretch of road, was made. Later the ladies visited the R. A. Long High School, and were complimented by a student program. This was followed by a luncheon and card party at the Longview Country Club. Saturday they joined the men at lunch, then having an afternoon theater party before the closing banquet and dance. Mrs. B. T. Larrabee was chairman of the ladies program and handled it all mighty well.

The Equipment Display

A new and successful feature of the convention was the display of equipment and supplies by manufacturers. A room adjoining the dining room was utilized for the purpose, and a large number of exhibits were installed. Attractive decorations added to the interest of the display, the success of which was attested to by the fact that outside of the meetings, the room was nearly always crowded by mill men seeking information on new developments. H. T. Peterson of Weyerhaeuser's, was in charge of the exhibit. This feature will probably be continued at subsequent meetings.

The attractive program of the convention was printed on pulp stock furnished by the pulp division of Weyerhaeuser Timber Co., with the interior sheets from the Longview Fibre Co.

Superintendents Meet at Green Bay

Members of the American Pulp and Paper Mill Superintendents Association met at Green Bay, Wis., June 8, 9 and 10 for their fourteenth annual convention.

A sports Jamboree was held June 7 in advance of the gathering, with golf tournaments and clay pigeon shooting. That evening the Ancient Order of Chinese Paper Makers held their initiation exercises with Fred G. Boyce in the role of Confucius. Following a parade in gay pajamas through the main streets of Green Bay, a dinner was held, featured by the Auction of the Lost Derby.

The convention proper was called to order Thursday morning by general chairman Frank J. Timmerman. The following papers were presented the first day: "Lubrication of Ball and Roller Bearings and Reduction Gears;" "Developments in the Paper Industry;" "New and Future Uses of Paper;" "The Properties of Paper Pigmented With Zinc Sulphide;" "White Water Problems;" "Anticipating Maintenance Expense by Proper Inspection;" "The Control of Man Failure;" "Constant Tension Regulator on Reels and on Winding Stand;" "Windowless Paper Mill," and "Benefits of Chromium to the Paper Industry."

The various groups of superintendents met Thursday evening, dividing into sections on book and fine paper, tissue, board and coarse paper, groundwood pulp, soda sulphate group, and the sulphite pulp group. Papers of interest to each particular group were presented.

An educational film on pulp stones was presented at the Friday business session, followed by a paper, "The Introduction of Elemental Chlorine in the Bleaching of Pulp," by J. E. Underwood of the Pennsylvania Salt Manufacturing Co. Exhibits of pulp and paper making equipment were viewed in the afternoon prior to the banquet in the evening. Entertainment and dancing followed.

The Institute of Paper Chemistry at Appleton was visited Saturday, as well as the mills between Green Bay and Appleton.

Most of the superintendents went to Chicago following the close of the convention, to visit the World's Fair, or Century of Progress.

REVITALIZING FOREST INDUSTRIES Offers Nation Great Benefits

A Statement of the Case for Timber by a Leading Pulp and Paper Executive

An intelligent use of our tremendous forest resources to supply our own needs offers one of the largest possibilities for sustained and increased employment available to us as a nation. Lack of public interest, misconception of our forest resources, and the importance they play in our national life, have been vital factors in diminishing employment in this fundamental resource field. The past twenty-five years have witnessed a growing lack of proper utilization and conservation of this national heritage and we have failed to keep abreast with the tremendous developments in proper utilization such as fostered by other nations.

The outcome has been that this nation, possessed of a virgin and growing crop of softwood timber equal to the combined stand in all the other timber growing countries of the world, with the exception of Russia, has failed to encourage the utilization of these forests. This has transferred to foreign shores a tremendous employment, now producing for our markets, thus creating a continuous drain on our national income. Forest products now imported represent hundreds of millions of dollars annually.

Investigation of Forest Loss in Order

An unbiased, accurate investigation into the causes for this transfer to foreign shores of one of America's pioneering activities is in order. Perhaps the greatest loss to us as a nation is the failure of individuals and political bodies to appreciate the sound economics afforded in utilizing our timber resources, thru the development of rotating timber crops.

A wasteful liquidation program has been forced upon private timber owners through ruinous taxing laws and lack of fair treatment in our commercial policy as a nation for this essential basic industry.

Competition, regional jealousies, and foreign-minded citizens have served to keep our national government from considering this problem fairly and invoking such remedies that an investigation surely would prove vital. Such remedies if applied would increase and protect the employment that would go with a program of permitting our own citizens to again produce, till and reforest our natural forest areas, when a future is assured, based upon reasonable economic return.

Findings of Conservation Board

During the past three years the United States Timber Conservation Board, composed of outstanding citizens throughout the nation, interested in revitalizing our forest industries, conducted comprehensive surveys and studies into the plight of these industries as a whole. Their findings, recently compiled, have served to clarify the position, our forests and their respective industries occupy in our national life. They have made certain observations touching on the most vital problems, such as:

(a) The diminishing per capita use of lumber.

(b) Ruinous and antiquated taxation policies, such as levying of taxes on growing timber instead of at the time of marketing.

(c) The failure to encourage the use of these forests and their by-products for other purposes than lumber, such as fiber products, now representing importations in tremendous quantities produced from the same wood in other lands.

(d) Regional shifts that have taken place in the past twenty-five years from sparsely producing areas to that of virgin and matured sections of our country in the South, West and on the Pacific Coast.

Timber Plentiful

Perhaps their most interesting observation is the enormous resource of timber that we still have available, which, if properly used and protected with reasonable recropping, will assure us in perpetuity an ample supply of softwood timber to cover all our needs. These findings are somewhat a reversal of the generally accepted theories that have prevailed that the United States is rapidly becoming denuded of timber. Such misconception has been fostered due to lack of complete national surveys in the past.

To those engaged in the forest industries this erroneous conception by the public has been a constant handicap for encouraging the practical and simple methods of full utilization which is the keynote to any forest conservation.

Growing of timber is like the growing of any other crop of the soil—it has to be used and rotated with selection to become a healthy crop.

Profitable Outlets Necessary

Our over-abundant, decaying, matured virgin forests in some of our states have first to find an outlet of some sort, before a real interest in the practice of constructive forestry can be developed. Our forest problem is further governed by ordinary economic laws and will not succeed commercially if the chance for profit is lacking.

To illustrate what has taken place in one branch of our forest industries, due to this lack of proper interest of our national authorities—the diminishing domestic per capita demand of lumber has been practically offset in the last fifteen years by the growing demand for wood fibre products of all kinds, such as pulp, paper and cordwood required for the production of the same. Our total annual consumption of woodpulp, paper, and fibreboard in 1914 amounted to 4,600,000 tons. In 1930, a somewhat sub-normal year, the consumption of these products had increased to a total of 11,000,000 tons. During the intervening years we failed to increase our own production to meet this increased domestic demand. The benefits in labor employed practically all went to foreign countries at the expense of employment in our own.

Paper Industry Under-developed

From a self-contained fibre industry in 1910, we find that in 1930 we imported approximately two million tons of woodpulp, two million cords of pulpwood, and three million tons of paper in the form of newsprint, representing $256,000,000.00 that should have been expended at home. An effort to transfer the industry to the heavier timbered regions of our country was instituted to meet the foreign competition which suddenly arose after the removal of protection on pulp and newsprint in 1912.

Lack of encouragement and foreign-mindedness of some of our citizens prevented maintenance of an expanding industry to take care of our national demand. Considering the plant capacity for the manufacture of woodpulp, paper and fibre products that existed in 1914, and the tremendous benefits from machinery and plant construction that would have ensued had we had the economic foresight to encourage the development of these industries as rapidly as consumption demand arose—it would mean that we would today have to erect sufficient plant capacity to double that existing in 1914.

It is true that technical developments that have taken place, as a result of the expensive dependence on foreign sources for these materials during the war, showed us the use of species of our timber which, prior to 1914, were considered unsuitable for fibre production. This has had some bearing on the tardiness to revitalize interest in producing our own requirements of these products. This technical shift has, however, now been thoroughly practiced in the South, Lake States, and the far West for a number of years.

Foreign Influence Halts Expansion

Due to the tremendous foreign expansion in the intervening years, often by our own citizens abroad, the pressure exerted by these foreign producers on our markets has forced prices of pulp and newsprint so low that no possibilities remain of securing any price for domestic stumpage to compete with such countries as Finland, Sweden and Norway. These countries have expanded more than 500% during the last ten years, with the aid furnished them by cheap Russian wood. A similar expansion has taken place in the newsprint industry in Canada at our expense, brought about through subsidized stumpage limits afforded investors in the Provinces.

The simpler timber taxation laws of Canada, Sweden, and other North European countries, the cheaper labor costs, offered inducements which attracted American investments. There followed a consequent urge by these investors to remove from our accepted standard policy of protection for paper products, the protection that existed on newsprint and woodpulp, the two largest items of timber consumers in the whole fibre field. As a result of this fallacious policy, our importation today, in terms of newsprint, pulpwood, reduced to cordwood, represents annually in excess of nine million cords. The production of this at home would have gone a long way to absorb the loss in the per capita demand for lumber.

Industry Holds Great Employment Possibilities

The employment in producing these products from our own overabundant resources would mean direct employment in the forests, chemical industries and plants directly affiliated, in excess of 200,000 men. This estimate does not include the indirect employment in the construction and machinery industry, railway, shipping and transportation involved in handling these forest products from forest to plant, from plant to converter or eventual consumer, now inuring to foreign interests.

The failure to protect, on an American living standard, this additional outlet for forest products in our own market, has been the real cause preventing the shifting of the industry to the abundant forest regions of the South, West and Lake states, and maintaining the plants in our New England states, where the foundation of our fibre industry was laid. If the two items making up the bulk of the paper field are not entitled to a reasonable protection, then surely it might be argued that we should remove all protection existing on the importation of paper. The public's interest, by this same reasoning of those opposing protection on woodpulp and newsprint, could well be said to be served from such a program of having the foreigners make all our paper requirements.

Domestic Producers and Labor Unprotected

Conditions have become intolerable the last eighteen months. The urge to sell in our unprotected markets has inoculated domestic prices, forcing them down approximately 50 percent below the past fifteen years' average. Dumping has of late been further aided by devalorization of money standards in the countries which supply this particular import. Americans have had to close plant after plant, and thought of expansion or new construction has entirely ceased.

There is at the present time an investigation under way by the Tariff Commission to compile statistical data showing the relative costs abroad to produce these products. It is hoped that this investigation, coupled with the findings of the Timber Conservation Board, will serve to enlighten Congress on the need for some constructive program.

It is needless to further dwell on the national benefits from the encouragement and revitalization of our forest industries wherein men might be gainfully employed, producing that which we ourselves consume, and thereby furnish a real incentive for a constructive utilization and reforestation program.

I do not believe that we have any industry that so quickly could offer a tremendous employment program in the United States, fostered by private enterprises, as an expanding fibre industry over a period of years to supply only our own consumption. This industry is not an export industry, our exports being less than 1 percent.

Other surplus producing nations have found it practical for all times to protect this particular branch of their industry by ad valorem duties (such as Canada, which has always levied 25 percent) and thereby prevented other nations from encroaching on their domestic employment, which is so closely allied with the farm problem through woodcutters engaged in producing pulpwood on farm lots.

Industry Vital to National Welfare

Any protection, in terms of per capita cost to the users of paper, would be insignificant compared to the benefits to the nation as a whole from providing this wage earning in a producing industry, rather than increased taxation to provide sustenance to the labor now denied this employment.

Many newspaper publishers, not interested in foreign pulp and paper enterprises, have recently realized that the pulp and paper manufacturers have been valuable subscribers and advertisers in their papers. Their objection in the past to protecting American producers of newsprint was at a time when prices were more than double those prevailing today. Their past fears of lack of ample wood supply have been completely allayed through the discovery of methods of processing other species, abundantly found in our own country, which ten years ago were not considered useable for the manufacture of paper. Selfishness of any one group should not be allowed to destroy national welfare.

The federal government, through its ownership of large virgin stands of over-matured timber, should be doubly interested in finding a proper utilization program wherein these forests might be put on a renewable basis, rather than allowed to deteriorate from the lack of markets for the products of these forests.

Pulp and Paper For NATIONAL DEFENSE

If our country were to go to war today, we would find ourselves as unprepared as we were in 1917, as far as pulp and paper are concerned. In the seething days of the World War we gave little thought to our domestic pulp and paper industry. All we knew was that there was a tremendous shortage of paper, that our requirements were increasing rapidly and that costs were unprecedentedly high.

From that experience we should have learned our lesson, but unfortunately we have not. The nation still does not recognize the importance of a fully developed domestic industry, despite the bitter experiences fifteen years ago. We still are dependent upon foreign sources for a large part of our requirements.

In 1917, importers would gather around a table in New York, and smiling complacently at one another, say, "Well, what shall we make it this week, boys, a thousand kronor a ton?" For pulp now selling at little over $30 a ton, we paid as high as $180 a ton in war days. Prices were dictated by foreign producers.

Who does not remember the clamorous demand for more and more newsprint, and the accompanying rise in price to well over $100 a ton?

Because of our dependence on foreign supplies, the American people literally paid millions on millions of dollars additional for pulp and paper which could have been made cheaper at home had we allowed our domestic industry to develop properly before the war.

The necessity of an ample supply of paper for the nation's needs in war time is indisputable. It finds an important place in the list of war supplies. And we can depend on no one to furnish us a full and steady supply at legitimate cost except ourselves.

In addition to the ordinary uses for paper, pulp forms another vital link in our chain of national defense. Great quantities of pulp were used during the last war for the packing of powder into shells. Because of the shortage of cotton linters, which were used for smokeless powder, pulp was used with linters in mixture in the making of the powder itself. In other countries, wood pulp was directly used in the form of thin absorbent paper for producing powder without mixture of cotton linters.

Experiments carried on to date indicate that in the next emergency, wood pulp will play an increasingly important part in the manufacture of munitions.

The War Department has done considerable work on this subject, and intends to carry on the work on a larger scale in future. In this connection, Dr. C. G. Storm, chief of the explosives section of the Ordance Department, has written Pacific Pulp & Paper Industry as follows:

"The Ordnance Department has devoted considerable attention, since the World War, to the study of the use of wood pulp in the manufacture of smokeless powder. It was felt that the existing facilities for the purification of wood pulp might be of great value in an emergency, at least during the period required for the construction of additional plants for the purification of cotton linters. Experimental attempts made during the war to nitrate wood pulp directly were not successful, the nitrating and purification equipment designed for use with cotton being unsuited for use with the much finer wood pulp. This difficulty was overcome by using mixtures of the pulp with cotton linters or hull fiber. Powder made from such mixtures was entirely satisfactory and is still of good stability.

"Wood pulp has been used extensively in certain foreign countries for the manufacture of smokeless powder, usually being prepared in the form of thin paper prior to nitrating. This method of preparing the pulp was therefore made use of in the experimental work of the Ordnance Department since the war. A number of varieties of commercial wood pulps were converted into paper of suitable thickness and proper degree of absorbency, and laboratory nitrations conducted. The results indicated that the most favorable results could be obtained with bleached sulphite pulp or with so-called alpha cellulose. There was also evidence that the nitrated wood pulps were more readily freed from residual traces of free acid by the purification process than was nitrated cotton. It is the intention to conduct further experimental nitrations of these pulps in paper form on a larger, semi-plant scale.

"More recently, attention has been given to wood pulps commercially available in so-called tufted or fluffed form, quite similar in appearance to purified cotton linters. Several grades of such material, furnished by different manufacturers, have been subjected to preliminary nitrating experiments. Although this work is still in progress, results have been obtained which indicate (1) that this form of pulp is more suitable for nitrating than the paper form, (2) that the yield of nitrated product is comparable with that obtained from linters, (3) that the product can probably be more readily stabilized or purified than that obtained from linters. There appears to be no difficulty in nitrating this material in the equipment ordinarily used with linters, indicating that wood pulp in suitable physical form may be used without the necessity of first converting it into paper.

"Assuming that these results are confirmed by larger scale experiments it will still be necessary to determine whether smokeless powder made from this product will possess as satisfactory chemical stability as that made from cotton. Other things being equal, a choice between cotton linters and suitable wood pulp as raw material for peace-time manufacture of smokeless powder, will depend on economic considerations.

"As regards the selection of raw material for use in time of war, another very important consideration is the availability of a sufficient supply. In the event of a shortage in the supply of linters, a mixture of linters and hull-fiber could be utilized, as was done during the World War. If facilities for the purification of cotton were inadequate, no doubt use would be made of purified wood pulp."

In peace or in war, the pulp and paper industry carries a great responsibility to the nation. How well it can discharge these responsibilities depends largely upon its freedom from unfair influences, from domination by foreign competitors, from economic sabotage by our own citizens.

As an indispensable unit in our national defense organization, the pulp and paper industry merits all the encouragement and protection the government can give.

OUR FOREIGN TRADE IN PAPER PRODUCTS

By N. S. MEESE
Assistant Chief, Paper Division
U. S. Bureau of Foreign & Domestic Commerce

A retrospect of 1932 in the field of paper must again emphasize the grief of prior years, but tempered slightly by reason of increases in exports of a few lines early in 1933. World wide production of paper and its converted articles was reduced generally to an extent comparable with the decrease in consumption, but capacity unfortunately could not be placed on an equivalent basis, a serious handicap to an already hampered industry. Competition in many lines and many fields became keener because of an abnormal currency situation, particularly in the instance of base stocks, and serious consequences were predicted in the newsprint industry because of the price situation. Taken as a whole, our exports of paper and paper products in 1932 were strictly in line with general trade conditions throughout the world.

Export Volume Decreases 15%; Value 31%

Considering tonnage and value separately, our total exports of paper in 1932 showed a decrease of about 15 percent by weight and 31 percent by value as compared with 1931. The difference is to be accounted for in part, as it was last year, by the consumption abroad of larger quantities of lower priced paper goods purchased here and also in part by an actual reduction in the quoted price of the items purchased. While quality has in some instances continued to be a factor of importance in making sales, price has dominated markets to a much greater extent than ever before.

An examination of Table 1, plainly shows that tonnage increases in sales abroad were experienced by only three rather minor export items, and that only two of these represented greater actual value. The actual weight of overissue newspapers exported, mainly in the Far East, was slightly greater, but owing to extremely keen competition from European producers, prices were drastically cut and the value decreased. All items except this one, together with surface coated and tissues, showed decreases of greater or less magnitude, in most instances the proportionate decrease being decidedly greater in the value column.

Table No. 1
EXPORTS OF PAPER AND BOARD FROM THE UNITED STATES
1931 and 1932

Class	1931 Short Tons	1931	1932 Short Tons	1932
Newsprint	9,653	$ 604,913	8,464	$ 447,896
Book paper	9,512	1,154,285	7,482	787,094
Cover paper	856	259,448	542	130,974
Greaseproof and waterproof paper	2,317	974,505	2,097	871,911
Overissue newspapers	104,056	1,538,564	105,576	1,472,722
Wrapping paper	14,307	1,629,216	9,630	1,317,011
Surface-coated paper	2,538	580,346	3,030	677,898
Tissue and crepe paper	1,489	505,978	1,838	554,128
Toilet paper	3,518	725,741	3,027	542,436
Towels and napkins	1,758	351,555	1,065	202,218
Boxboards	26,517	1,181,313	18,752	660,469
Bristol and bristol boards	838	158,493	826	111,448
Other boards	20,169	1,416,779	12,363	814,086
Sheathing and building papers	7,513	440,175	3,499	187,325
Fiber insulat. lath or board (1)	37,627,048	1,200,085	24,891,109	641,595
Wallboards (1)	18,499,261	591,051	6,714,857	181,721
Blotting paper	926	211,125	546	117,036
Filing folders	650	438,450	486	311,256
Papetries	136	69,754	96	44,503
Writing paper	7,332	1,309,004	6,265	859,236
Hanging and wall papers (2)	2,363,157	287,531	776,182	79,885
Paper bags	5,947	826,524	4,286	485,158
Paper boxes	7,241	931,775	5,590	628,046
Envelopes	773	237,404	532	148,536
Vulcanized fiber	1,727	961,930	1,123	666,489
Cash register and add. mach. paper	4,399	686,105	2,449	354,666
Other paper and paper products		3,147,154		2,111,816
Total		$22,419,203		$15,407,559

(1) Square feet.
(2) Rolls.

Effect of Depreciated Currencies

The one item which should be kept firmly in mind in trying to picture our export market as a whole over the year 1932 is the difficulties thrust suddenly upon our export manufacturers at the abandonment of the gold standard by our strongest competitors in late 1931 and the accentuation of rivalry in the world's markets on the strictly price basis. For a considerable period of time, European paper manufacturers found themselves advantageously placed with relation to the United States in many markets by reason of lower costs of production in most lines and the ability to cater particularly to market requirements in still more. Immediately the difference in exchange value favored them, particularly those in Great Britain and the Scandinavian countries, costs in the United States became relatively higher and our sales suffered in proportion. At the close of the year, our total paper exports were lower in value than they have been since 1913.

In 1931 our exports of paper base stocks decreased in value by 11 percent as compared with 1930; in 1932 we find a still further decrease of 27 percent, the major item of which was pulpwood, as shown in Table 2. One reason for this decline was that considerable pulpwood stocks were already on hand at the consuming mills and with reduced output and still more restricted market, only very limited purchases were necessary.

Imports Declined

The country's import figures tell a story as to the world's business similar in many ways to that told by the export data just discussed. Our imports of paper and paper goods declined 25 percent in value in 1932, as shown in Table 3. Newsprint imports alone decreased by 248,000 tons and nearly $30,000,000, or 24 percent in value, all other items combined shrinking by 30 percent. Imports of greaseproof papers in

Table No. 2
EXPORTS OF PAPER BASE STOCKS FROM THE UNITED STATES IN 1931 AND 1932

Class	1931 Quantity	1931 Value	1932 Quantity	1932 Value
Pulpwood*	81,091	$ 624,592	28,405	$ 177,327
Sulphite pulp	49,792	2,251,130	45,857	1,962,538
Soda pulp	1,436	92,643	1,236	65,331
Other pulp	2,080	62,869	767	9,684
Rags and other stock	32,137	683,265	36,961	492,397
Total		$3,714,499		$2,707,277

*In cords. All other items in short tons.

1932 increased by 20 percent in quantity, but dropped 24 percent in value owing to exchange conditions and the purchase of an increased proportion of the cheaper varieties. Imports of Kraft wrappings, although relatively small, grew by 80 percent in quantity and 31 percent in value, most, if not all, of this having come from the depreciated currency countries. All articles other than these, with the exception of book paper, declined substantially in both quantity and value.

The decrease in imports of newsprint paper may be accounted for largely by reason of further declines in advertising space consumed. Newspapers in widely scattered areas were reduced in both size and circulation and few or no new media of this kind entered the field. The quantity of writing paper entered was less by 40 percent, while the value decreased by 45 percent, mainly because of efforts of domestic manufacturers to increase quality without raising price, and at the same time by reason of trade organization activities devoted to preventing unfair competitive imports or the misclassification of entries.

After a 50 percent tonnage increase in the quantity of cigarette paper imported in 1931, the contrast of a drop of 16 percent in quantity and 24 percent in value in 1932 is notable. It is believed in the industry that in reducing the cost of cigarettes, the lower-priced brands have necessarily adopted the use of increased quantities of domestic paper which has been able to compete successfully with that made abroad even with prices lower than they have been in years.

Paper Base Stock Imports

The continued decrease in the consumption of paper in the United States as elsewhere was reflected directly in our imports of base stocks as shown in Table 4. Pulpwood entered in 1932 showed a drop of 37 percent in quantity and over 50 percent in value. Total imports of all base stocks dropped 27 percent, largely because in the pulp group the currency situation in other producing countries from which we import, was marked by a progressive decline in declared value which exceeded considerably the actual drop in quantity shipped.

As to the countries of origin of our stock imports, Canada showed greatest decrease in quantity of pulp supplied, Sweden showed a moderate decline, Finland was fairly steady except for the item of unbleached sulphate which decreased, and Norway showed a relatively enormous increase in tonnage sent here. Both the currency situation and control of production and export shipment were responsible for the wide variations. Rag imports declined markedly in both quantity and value because of the lessened consumption of high quality rag papers, the apparently increasing supply of domestic rags, and the decreased use of coarse rags for making building papers.

Summary

The effects of the depression felt so severely in 1930 continued with undiminished strength throughout 1932, with no apparent possibility of diminishing any of the items in cost bracket called "fixed charges" or of completely eliminating marginal equipment, the spread between capacity and consumption became even greater. Merchandising became more difficult and to a certain extent acted as a check on increasing inventories, although in some instances little effect was noticed. While there was practically no capacity increase except in specialty lines, no balance was possible in the other important factors involved.

Markets abroad were further restricted by reason of quota systems, higher tariff barriers, "Buy National" campaigns, inability to purchase exchange, and other allied measures taken to protect native industry. Quality as a talking point became of still less importance and price loomed large in the mind of the prospective purchaser. The latter was paramount in practically all countries in which our merchandise competed with that from those countries which had abandoned gold, particularly since those markets continued to shrink, in some instances even more rapidly than in prior years.

Hopeful Signs in 1933

The early months of 1933 have brought forth increasing hope largely through plans for industrial readjustment and control which if fully effective would balance production and consumption more nearly than could otherwise be possible. Steps in this direction, taken in cooperation with certain changes in trade association activities and a broader interpretation of the anti-trust laws are bright spots in the present industrial sky. International cooper-

Table No. 3
IMPORTS OF PAPER AND BOARDS INTO THE UNITED STATES 1931 and 1932

Class	1931 Short Tons	1931	1932 Short Tons	1932
Newsprint	1,847,684	$112,169,627	1,599,238	$84,675,654
Other printing papers	1,500	93,963	1,820	97,226
Greaseproof and waterproof paper	179	75,390	215	57,169
Kraft wrapping paper	1,998	169,183	3,619	221,169
Other wrapping paper	1,452	135,768	1,269	78,638
Writing papers	1,238	476,813	840	263,617
Envelopes and papeteries	.....	252,974	.....	92,192
Surface-coated paper	550	538,394	419	342,665
Uncoated papers, decorated or embossed	73	38,059	25	13,360
Tissue paper, not over 6 lbs. per rm.	696	884,892	526	467,811
Other tissue paper	307	246,503	187	130,322
Pulpboards	11,631	495,453	10,833	367,009
Paperboard, pulpboard, cardboard, n. e. s.	7,077	296,302	5,218	182,909
Leatherboard	1,172	121,407	1,183	135,405
Cigarette paper, books and covers	10,369	5,396,469	8,721	4,141,144
Hanging and wall papers	517	304,513	202	97,839
Duplex decalcomania, not printed	203	84,786	144	47,151
Paper boxes	.....	968,845	.....	700,378
Pulp or papier mache manufactures	.....	417,986	.....	264,887
Other paper and paper products	.....	2,455,821	.....	1,712,873
Total		$125,623,148		$94,089,418

ation in industry will apparently have to await a thorough domestic housecleaning and the placing of a permanent foundation for an exchange of basic constructive information. The industry here found itself on a more nearly equal basis with that of our competitors when export gold shipments were suspended and the balance of 1933 will probably show many changes in both direction and methods of industrial and market control that will make for a permanent improvement of business in all lines and the ultimate recovery of industry as a whole.

Table No. 4
IMPORTS OF PAPER BASE STOCKS INTO THE UNITED STATES IN 1931 AND 1932

Class	1931 Quantity	1931 Value	1932 Quantity	1932 Value
Pulpwood*	1,021,667	$11,211,298	648,188	$ 5,581,996
Mechanical				
Unbleached	197,351	4,211,240	171,042	2,997,675
Bleached	13,214	282,692	17,423	270,782
Sulphite				
Unbleached	604,807	22,995,311	569,059	17,047,669
Bleached	358,418	18,929,567	348,372	14,727,214
Sulphate				
Unbleached	385,965	12,035,030	347,938	9,818,674
Bleached	33,245	2,267,090	26,170	1,975,720
Soda pulp	3,422	165,581	1,757	65,512
Other pulp	284	21,149	200	18,127
Rags	58,340	1,571,148	44,218	1,161,315
Other Stocks	61,643	1,503,180	42,485	781,356
Total		$75,193,286		$54,446,020

*In cords. All other items in short tons.

Newsprint Price Cut Intensifies Perilous Condition of Industry

After having held the price of $45 per ton for newsprint on the Pacific Coast for two months after the price cut by the International Paper Co. in the East, Coast producers were forced to make another $5 reduction June 6, effective June 1.

Further slashing of newsprint prices by International Paper Company, announced recently, will probably result in the elimination of several of the weaker producing companies in the eastern Canadian field.

Not all the comment on International's action is laudatory, the Financial Post, published in Toronto and the leading financial journal in Canada, declares in the opening paragraph of a four-column summary of the newsprint situation:

"Operators, bankers and others interested in salvaging something out of the wreckage of the Canadian newsprint industry look forward to the day when their path may be smoother by the displacement of the International Paper & Power Company as the dominant factor in the newsprint situation. The belief has grown over the last two years until it has almost become a fetish that the re-establishment of the newsprint industry cannot be effected on a lasting basis until I. P. goes under. Every difficulty confronting the industry has been placed on the doorstep of this 'American Octopus'. When such has been to the advantage of its competitors, I. P. has been accused of breaking agreements, cutting prices, and all other evil deeds outside the place of modern business ethics."

When A. R. Graustein, dynamic president of the International, announced that from the beginning of April and until further notice his company would give its contract customers a discount of $5 a ton on newsprint, executives of several competing mills felt justifiable anxiety. They had been sailing close to the wind even under the former price schedule, and a sudden drop of another $5 a ton was regarded as sufficient to blow them over.

Object of International

The object of International, of course, is to stabilize the industry chiefly for the benefit of International, but also to straighten out the financial complications that have arisen through years of over-production and operation of mills that have long ceased to be profitable units. Their idea evidently is that by weeding out some of these weaker companies International may indirectly be serving the industry as a whole by placing the business in the hands of a few well financed and skillfully managed corporations, even though the primary motive for the recent price cut may have been essentially selfish.

Unrestained expansion and overcapitalization have been the twin curses of the newsprint industry in eastern Canada for several years. Canada Power & Paper, Abitibi Power and Paper, Minnesota and Ontario, Great Lakes Paper, Lake St. John Paper & Power, and Price Brothers & Company have all become insolvent during the last two years, while the remaining operators have been piling up huge deficits and have been facing bankruptcy. Not all the troubles of these companies may fairly be attributed to chaotic conditions in the newsprint industry, but their difficulties have had an adverse bearing on the situation.

Stabilization Efforts Fail

Repeated efforts have been made to get the newsprint producers together in a satisfactory price agreement so as to maintain stabilization; but always these efforts have fallen through. Since last July, when negotiations for price equality were abandoned, each company has been doing its best to protect its own individual interests without regard for others.

Lack of common policy has brought about further disruption in the newsprint market. Price standards have been disregarded in the struggle for business, and the net result has been that those companies in receivership have not improved their position despite lifting of funded debt charges, while the others have been sinking further into the morass of deficits.

By bringing its price down another $5 International has speeded the day when the less efficient mills will be forced to shut down. It is common knowledge that for several months past manufacturers have been selling newsprint below the official price of $45 a ton in the New York zone. Several large contracts have been taken at around $40, and one Canadian firm recently took a big American contract in open competition at a price of $38 a ton. The industry faces the most critical period in its history during the next eight months. Under the new price schedule working capital will be more difficult to obtain and high cost mills will find it difficult to continue working.

CONSTRUCTIVE MEETING HELD BY PACIFIC PAPER TRADE ASSOCIATION

A program designed to enable the paper industry of the West to fall into step with the proposed federal government control of industry was adopted at the sixteenth annual convention of the Pacific States Paper Trade Association at Del Monte, May 11 and 12, when committees representing coast merchants and mills were named to coordinate and cooperate with Washington in any future stabilization plan.

Hearty approval of the federal administration's plan for rehabilitation of industry was voiced at the convention. Harold L. Zellerbach, retiring president of the association, presiding at the annual merchants and manufacturers meeting May 11, declared buying power should be built up and if inflation will accomplish this by moving men back into industry, then the situation will be saved.

Manufacturers at the meeting seconded the endorsement of the merchants. Sidney L. Willson of Holyoke, Mass., one of the eastern visitors, president of the American Paper and Pulp Association and head of the American Writing Paper Co., declared that eighteen months ago he advocated the same industry control ideas now being discussed by the federal government. Harrison L. Baldwin of Erie, Pa., vice-president of the Hammermill Paper Co. in charge of sales, and president of the American Writing Paper Manufacturers Association, said it was likely the proposed industrial control machinery would resemble the War Industry Board of the World War days. W. J. Pilz of the Everett Pulp and Paper Co. of Everett, just back from the east, said legislation along the lines of that now under discussion was needed by the paper industry.

Industry Control Committees

Harold Zellerbach, who is president of the Zellerbach Paper Co., San Francisco, heads the committee of jobbers named to work on the industry control problem. On his committee are Otto W. Mielke, San Francisco, Blake, Moffitt & Towne; C. H. Beckwith, San Francisco, Carter, Rice & Co. Corp.; Thomas A. O'Keefe, San Francisco, Pacific Coast Paper Co., and William Taverner, Los Angeles, Taverner & Fricke. The millmen's committee is made up of R. A. McDonald, San Francisco, Crown Willamette Paper Co., representing the wrapping and bag paper group; W. J. Pilz, Everett, Everett Pulp & Paper Co., book papers; W. S. Lucey, Hoquiam, Wash., Grays Harbor Pulp and Paper Co., writing papers; W. A. Brazeau, Millwood, Wash., Inland Empire Paper Co., newsprint, and A. B. Galloway, Portland, Oregon Pulp and Paper Co., glassine and greaseproofs. The millmen named their committee at a meeting called by J. L. Murray, Everett, Everett Pulp and Paper Co., who was called upon by President Zellerbach as a representative of a now inactive association of coast manufacturers.

Arthur Towne Elected President

The 1933-34 president of the Pacific States association is Arthur W. Towne, San Francisco, vice-president Blake, Moffitt & Towne, who was elevated unanimously at the convention from his post of executive vice-president. C. H. Beckwith, head of the Carter-Rice jobbing group on the coast, was named executive vice-president and is in line for the presidency for 1934-35. Five vice-presidents were elected, following the amending of the by-laws, which has provided that only four could be named previously. This was done on the recommendation of the nominating committee, M. R. Higgins, San Francisco, Zellerbach Paper Co., chairman, which reported it was found the work was too much to be handled by four vice-presidents. The new by-laws permits the election each year of as many vice-presidents as the convention deems necessary. The five chosen at Del Monte were: J. W. Thompson, Seattle, Blake, Moffitt & Towne; Samuel Abrams, Los Angeles, United States Paper Co.; T. A. O'Keefe, San Francisco, Pacific Coast Paper Co.; Mason B. Olmsted, Los Angeles, Zellerbach Paper Co., and Ralph D. Finch, Portland, Packer-Scott Co. It was decided to hold the 1934 convention, as usual, in May at Del Monte, the exact dates to be set by President Towne later. H. Arthur Dunn, San Francisco, was renamed secretary-treasurer.

Three new members were voted into the association at the convention and it was announced that during the past year six other firms had joined. All the Portland paper merchants belong to the coast body, giving that city the only 100 percent record in the organization's history. The three newest members, all Los Angeles jobbers, are the Ingram Paper Co., United States Paper Co. and Wholesale Paper & Twine Co. The six firms joining since the 1932 meeting were the Standard Paper Co., Tacoma; Carter, Rice & Co. Corp., Portland; Osmund & Co., Portland; Packer-Scott Co., Portland; Packer-Scott Co., Seattle and the West Coast Paper Co., Seattle.

The festivities of the gathering were dimmed by the announcement that during the meeting the death of Frederick Gordon Wight had occurred in Oakland. Mr. Wight, for years a regular attendant at the Del Monte paper conventions, entrant in its golf tournaments and frequently a presiding officer at its banquets, was a pioneer of the paper industry of the coast. At the time of his death he was vice-president of the Crown Willamette Paper Co. and was vice-president of the Willamette Paper Co. before its merger with the Crown interests in 1914. M. R. Higgins delivered a eulogy to Mr. Wight at the meeting and resolutions of sympathy were sent to his widow.

Other resolutions of sympathy, prepared by the association's necrology committee, mourned the deaths during the past year of O. C. Holstrom, San Francisco, Strathmore Paper Co., P. C. Holland, Los Angeles, Carpenter Paper Co., William C. Brunner, Passiac, N. J., president of The Paterson Parchment Paper Co. and Howard C. Smith, Los Angeles, Milwaukee Lace Paper Co. The members of the association's necrology committee were Charles Pritchard, San Francisco, Bonestell & Co., A. W. Akers, Seattle, Zellerbach Paper Co. and Samuel Abrams, Los Angeles.

Optimism Evidenced

The convention program was spirited; the attendance was larger than expected, more companies were represented than last year, and old-

timers who are regulars at Del Monte said this year's event brought out more optimism and hope for business recovery than has been evidenced at the last several sessions. Among the eastern visitors were Sidney Willson, Harrison L. Baldwin, Arthur L. Chamberlin, secretary of the National Paper Trade Association, out from New York, and Smith McLandress of the Fox River Paper Co. of Appleton, Wisconsin.

Papers on various matters of interest to the industry were read and discussed. Arthur W. Towne presented a study of standardization and simplification matters; F. E. Jeffries, Tacoma Paper & Stationery Co., Tacoma, reported on membership activities and announced Portland was now 100 percent; T. A. O'Keefe talked on credit clearing and recommended uniform terms of sixty days; J. W. Thompson discussed twine and stressed the importance of this item to the jobbing industry; Charles Pritchard pointed out the proposed industry control details must be worked through trade associations; T. A. Leddy, Zellerbach Paper Co., San Francisco, prepared a paper urging a unified delivery system, T. A. O'Keefe reported his firm was using a commercial parcel delivery system and finding it economical and M. B. Olmsted said if the Los Angeles houses would join in a delivery system they could save several thousand dollars a month. W. D. McWaters, Zellerbach Paper Co., Portland, talking on "Commission Salesmen", outlining the "Portland Plan", declared commission paper salesmen should give their full time to the work and said he felt city salesmen on commission should have a drawing account of at least $100 a month and country salesmen $150. Louis A. Colton, Zellerbach Paper Co., San Francisco, talked on "Ordering by Specification" and said jobbers were opposed to a growing tendency among purchasing agents to order paper by specifications instead of by brands; C. H. Beckwith gave both sides of the discussion in the industry regarding amalgamation of sizes and Frank C. Stratford, San Francisco, Zellerbach Paper Co., discussing "Direct Selling By Mills", said leading paper mills were opposed to their representatives selling direct to customers.

Portland Well Organized

One of the interesting talks at the convention was made by C. A. Bell, who has been secretary of the Portland paper conference for thirty years. He outlined the tragedies and triumphs of these three decades of work and said he thought one reason why the Portland group pulled together so well was because they held their meetings at dinners on the first and third Fridays of each month and it was found men get well acquainted around the dinner table and found each has similar problems.

NEW PRESIDENT
Arthur W. Towne, Vice-President, Blake, Moffitt & Towne.

This convention was the second presided over by President Zellerbach, for he was in office at the 1932 meeting, having succeeded the late Ed A. Doran, San Francisco, Blake, Moffitt & Towne, who died while completing his term as executive.

Two new faces at the convention were those of John H. Smith, general manager, and Arthur D. Hosfeldt, sales manager of the Hawley Pulp & Paper Co. Another newcomer was Earl K. Craver, Los Angeles, coast representative of the Southern Kraft Corporation and Continental Paper and Bag Corporation.

President Zellerbach presided at the closing dinner Saturday night at which the prizes won in the golf tournament were awarded. Frank C. Stratford and G. J. Ticoulat, San Francisco, Crown Willamette Paper Co., were tied in the tournament for first prize, and putted it out on the banquet hall floor, Stratford winning. On one evening during the meeting, Rodman Pell, Jr., Pelican Paper Co., San Francisco, showed his interesting south sea moving pictures.

The Golf Tournament

The golf tournament was the fifteenth conducted by the millmen at the paper conventions and was handled by a committee headed by Augustus Johnson, San Francisco, Everett Pulp & Paper Co.

The results of the tournament follow:

Class A—Gentlemen: Winners: Frank C. Stratford and G. J. Ticoulat, tied. Playoff won by Stratford. Winner's prize donated by Pacific States Paper Trade Association and runner-up prize by Everett Pulp and Paper Co.

Class A—Blind Bogey—Won by W. J. Pilz. Prize donated by Graham Paper Co.

Class B—Gentlemen: Winner, M. R. Higgins. Prize donated by Western Waxed Paper Co. Runner-up, Harold L. Zellerbach. Prize donated by Crown Willamette Paper Co.

Class B — Blind Bogey — Winner, Arthur H. Chamberlin. Prize donated by Pacific Coast Envelope Co. Div.

Gentlemen's Approaching and Putting Contest—Winners, Arthur D. Hosfeldt, Andrew Christ and A. W. Akers, tied. Playoff won by Christ. Prize donated by Inland Empire Paper Co.

Gentlemen's Putting Contest—Winner, W. J. Gray. Prize donated by George La Monte & Son. Bogey winners, Arthur Towne, G. P. Shelton and George Wieman, tied. Playoff won by Towne. Prize donated by American Writing Paper Co.

Ladies—Winner, Mrs. G. J. Ticoulat. Prize donated by The Paterson Parchment Paper Co. Runner-up, Mrs. R. A. McDonald. Prize donated by Grays Harbor Pulp and Paper Co.

Ladies—Blind Bogey—Winner, Mrs. J. Y. Baruh. Prize donated by Hawley Pulp and Paper Co.

Ladies Putting Contest—Winner, Mrs. W. J. Pilz. Prize donated by Ben Levison. Runner-up, Mrs. H. Zellerbach. Prize donated by Nashua Gummed & Coated Paper Co.

Mixed Two-Ball Foursome (selective drive)—Winners, Mrs. W. D. McWaters and R. A. McDonald. Prize donated by Columbia River Paper Co. Runners up, Mrs.A. Johnson and Mr. W. D. McWaters. Prize donated by Fibreboard Products, Inc.

Ladies' Bridge Tournament—Won by Mrs. Andrew Christ. Prize donated by California Cotton Mills Co.

Those in attendance at Del Monte were:

Merchants

Los Angeles—W. W. Huelet and R. R. Whiteman, Blake, Moffitt & Towne; M. B. Olmsted, Zellerbach Paper Co.

Portland—C. L. Shorno, Blake, Moffitt & Towne; Ralph D. Finch, Packer-Scott Co.; W. D. McWaters, Zellerbach Paper Co.

San Francisco—O. W. Mielke and Arthur W. Towne, Blake, Moffitt & Towne; Charles Pritchard, Bonestell & Co.; C. M. Paganni and W. B. Reynolds, General Paper Co.; T. A. O'Keefe, Pacific Coast Paper Co.; E. A. Breyman, L. A. Colton, Frank C. Stratford, H. L. Zellerbach, L. Zellerbach and M. R. Higgins, Zellerbach Paper Co.; C. H. Beckwith, Carter, Rice & Co. Corp.

Seattle—J. W. Thompson, Blake, Moffitt & Towne; E. B. Embree, Carter, Rice & Co.; A. W. Akers, Zellerbach Paper Co.

Secretaries—A. H. Chamberlin, executive secretary National Paper Trade Association, New York City; H. Arthur Dunn, secretary-treasurer Pacific States Paper Trade Association, San Francisco; C. A. Bell, secretary Portland conference; Joe R. Coffman, secretary Los Angeles conference and J. Y. C. Kellogg, secretary Seattle group.

Manufacturers

A. P. W. Paper Co., C. J. Allair, San Francisco; American Writing Paper Co., Sidney L. Willson, Holyoke, Mass., and W. J. McCormick, San Francisco; Beckett Paper Co., J. B. Jones, Los Angeles; Brown Co., Earl Van Pool, San Francisco; Continental Paper & Bag Co., E. K. Craver, Los Angeles; Crown Willamette Paper Co., G. J. Ticoulat; R. A. McDonald and T. W. McLaren, San Francisco; Crown Willamette Corporation, J. Y. Baruh, Los Angeles; Cupples Co., Charles Spies, Los Angeles; and Howard Ruweler, San Francisco; Everett Pulp and Paper Co., William Howarth, J. L. Murray and W. J. Pilz, Everett, Wn., and Augustus Johnson, San Francisco; Field-Ernst Envelope Co., Allen D. Field, San Francisco; Fox River Paper Co., Smith McLandress, Appleton, Wis.; Graham Paper Co., C. E. Swick, San Francisco; Hammermill Paper Co., Harrison R. Baldwin, Erie, Pa., and J. F. Wuenschel and B. P. Jaggard, San Francisco; Hawley Pulp & Paper Co., John H. Smith and Arthur Hosfeldt, Oregon City, Ore.; Inland Empire Paper Co., W. A. Brazeau, Millwood, Wn., and S. R. Whiting, Los Angeles; Longview Fibre Co., H. L. Wollenberg, San Francisco; Nashua Gummed & Coated Paper Co.; James F. Nields, San Francisco; Northwest Paper Co., C. P. Sheldon, San Francisco; Oregon Pulp and Paper Co., J. E. Nail, San Francisco; Pacific Coast Envelope Co. Div., George R. Davis, San Francisco; Paraffine Companies, R. S. Shainwald, San Francisco; The Paterson Parchment Paper Co., W. J. Gray, San Francisco; Powell River Company, Ltd., R. H. Scanlon, Vancouver, B. C.; Riverside Paper Corp., N. L. Brinker, Los Angeles; Edward N. Smith, Los Angeles, mill representative; Western Waxed Paper Co. of California, Andrew Christ, Jr., Oakland and C. G. Wieman, Los Angeles.

George W. Houck, Portland, formerly with the Hawley Pulp & Paper Co.; Wm. Rothschild, Atlas Paper Co., San Francisco, and R. C. Pell, Jr., Pelican Paper Co., San Francisco, were visitors.

How Europe Looks at Soviet Trade

We have heard much lately, particularly since the advent of the new federal administration, about the recognition of Soviet Russia and the attendant trade benefits that would result. Both the benefits and disadvantages of recognition, so far as the United States is concerned, are more or less problematical, for each one is prefaced by the eternal "if." Not having experienced trade relations under a condition of diplomatic recognition, opinions pro and con in this country must necessarily be largely suppositional.

For this reason, it is particularly interesting to note an article in our reputable contemporary, "The Swedish Timber & Wood Pulp Journal", describing the experience of several of the European countries. The article is here reprinted in full.

"The possibility that commercial relations between Great Britain and Russia may be broken off has aroused a lively interest in timber circles, not only in England but in other countries too. The British government has obtained power from parliament to prohibit, for a period of three months, imports from Russia if circumstances should make such a step advisable. The timber trade in England does not seem to expect any drastic prevention of wood imports from Russia, at least not this year. Before Timber Distributors, Ltd., determined, at the turn of the year, to buy the Russian wood attempts are said to have been made to obtain the consent of the government to this transaction. But the government did not sanction it. When on the 17th of this month the Russian Commercial Treaty expires, the government is thus free to stop the import of Russian wood without any liability for damages to the firms that have bought such.

"The Russian export trade on Great Britain is of enormous importance to the Soviet for the payment of their debts to creditors in various countries, not least in England, but particularly in Germany. The Soviet policy has consistently been to obtain credits abroad. As creditors are naturally interested in the Soviet not being given any excuse—which might possibly be rather welcome—for failing in her payments, the Soviet government probably thinks that the British patience may safely be tried rather far.

"One of the fundamental causes of the present European misery is undoubtedly the poverty and wretchedness so liberally spread by the Soviet Union outside its own borders too.

"The consequences of the system of using long credits, largely guaranteed by governments, to stimulate trade with Russia are now becoming very distinct. The way taken of late years demands a constant extension of the credit system for trade with Russia. A state business like the Soviet Union can hardly be interested in gaining external economic independence. It is easier to deal with creditors than with independent people. The Russians are also searching high and low for new victims of her credit policy.

"Cheap exports of Russian staple commodities are held up as a bait for long credits for exports to Russia. Countries that have been strong enough to resist this temptation have at the present time at least one trouble less to wrestle with. One country which has put trade with Russia on a clearly business footing is France. For the last couple of years, her imports from Russia have not been allowed to exceed the value of her exports to that country. But Russia has little interest in trade on such conditions.

"Spain, although since the fall of the monarchy she has thrown overboard political prejudice, has nevertheless so far known how to keep independent of Russia. The Dutch have this year at last found that trade with Russia is more pleasant if not allowed to grow too much. Wood imports from Russia will be restricted this year. Germany would be glad to cut down her imports of wood from Russia, but is compelled to accept more than is considered necessary in order to facilitate the renewal of bills and the payment of interest on her Russian claims."

KERR NEW FIR TEX PRESIDENT

Peter Kerr of Kerr, Gifford & Co. has succeeded H. F. McCormick, resigned, as president of Fir Tex Insulating Board Co. Herbert Fleischacker of San Francisco, Lee A. Phillips of Los Angeles and W. B. Dean, Diamond Match Co., Chico, Cal., have also resigned as directors, being replaced by Peter Kerr, Preston W. Smith and N. J. Barbare. K. D. Dawson, vice president of States Steamship Co., has resigned as treasurer, being succeeded by Preston W. Smith. Judge John S. Coke continues as secretary.

A Permanent Supply of Pulping Woods in the Pacific Northwest*

By J. B. WOODS
Forester
Long-Bell Lumber Co.

A great many wild statements have been made about the available timber in the Pacific Northwest, and it is probable that even the wildest guess falls below the actual facts. Particularly is this true after we give effect to the productive capacity of our forest soil over a long period of years.

A short time ago we limited our discussions of pulping woods to a very few species of wide distribution and a larger number of species of very narrow distribution, the total aggregating probably not more than 25 to 30 per cent of the forest growth of this region. That is to say, when discussing pulp woods we spoke of Sitka Spruce and Hemlock as the principal species, quite widely distributed, and we included in a very minor role the several true firs or Abies, Cottonwoods and White Pine, because these were relatively scarce and often decidedly inaccessible at the moment. But now it appears that we may bring into the picture the single species of most plentiful abundance—Douglas Fir, and that fact certainly enlarges tremendously the scope of our mental excursions when we start to visualize the future of pulp and paper making in the Pacific Northwest.

Timber Volume Available

Just to give a rough idea of the volume of growing timber in the two states of Washington and Oregon, I will present the latest estimates provided by the Forest Survey and giving timber considered merchantable for lumber manufacture and pulping under present standards of utilization:

Acres of forest land in the Pacific Coast region—50,000,000 acres.

Merchantable softwoods — 1,233 billion board feet or two billion cords. Douglas fir constitutes about one-half of this in the region.

In Washington and Oregon we find 62 per cent of the above total stand of which portion two-thirds is Douglas fir.

This then presents a picture which you, with your greater knowledge of plant requirements, can digest without any help from me. These standards of utilization involve, of course, competitive market conditions as influenced by raw materials in other regions, as well as raw material demands of other industries in this region. We know, for example, that the logger ordinarily sells part of his output to the saw mill and part to the pulp mill, and that today he leaves a considerable volume of material in the woods. The two factors which can most readily change this situation for him are better prices for raw materials and cheaper methods of bringing the materials out of the woods. A slight increase in the return to the logger through either of these methods may increase his yield per acre of merchantable material by anywhere from 10 to 25 per cent. It appears then that we have a tremendous reservoir of raw material not included in present estimates, because of costs of extraction.

Utilizing Present Waste

Another great reservoir which, however, is included in these government estimates, is found in the back country remote from existing plants and unavailable for use at the moment. It is a question in my mind whether these remote stands in general should be operated until such time as we have accomplished a very much more complete utilization of the raw materials in our more accessible forest areas. In other words, if the operators logging into the Columbia River are leaving 50 per cent of the wood fibre volume on the ground to be destroyed by fire and decay, it would seem much sounder from every standpoint for us to promote 90 or 95 per cent utilization of their stands before we force on to the market some of the more remote stands in the National Forests. While this may seem a far-fetched illustration, the fact is that the sale policy of the Forest Service might conceivably do just what we have mentioned. The suggestion is seriously made, therefore.

We of course know that pulp manufacturers in other parts of the country have acquired timber properties and in a good many cases have deliberately planned for replacing, by growth, the raw materials which they use. This is a familiar development in the southern states during the past ten or fifteen years and much has been said about the great productive capacity of southern lands in terms of Loblolly and Slash Pine. Having personal contact with several of these reforestation projects, I am quite enthusiastic over their possibilities, but it is my firm belief that the best of our northwestern lands can produce year after year from 20 to 30 per cent more volume than the best of our southern lands. So, after giving effect to possible greater costs of extraction and to greater distances from markets, it is probably safe to say that this region has at least as fair conditions for permanent production or sustained yield as does the south.

In terms of tree growth the better class of forest lands on the Pacific Coast which, by the way, probably aggregate not less than twenty million acres, can produce over a reasonable rotation period an annual growth increment from 1½ to 2 cords of sound wood fibre per acre.

A Colossal Timber Reservoir

A few years ago I conducted a thinning experiment on a small piece of land of the sort under consideration, upon which a young Douglas fir and hemlock forest had been growing for thirty-five years. The purpose of the experiment was to take out one-half of the stand in terms of basal area and remove as near as might be one-half of the leaf canopy, so as to permit the remaining trees to grow more thriftily. We cut the trees into fuel wood and sold them as such, and our final result was 28.2 cords per acre, although actually we had not removed one-half of the stem volume of the stand. This shows that these western lands can and do produce tremendous annual increments. In the present instance the fact that surprised us most was that the average

*Paper presented at spring meeting of TAPPI, Longview, Wash., May 5, 6.

height of the trees in this young stand was about 95 feet, which is a very respectable tree length for a mature stand anywhere else in the United States. Given 20 million acres of well managed high grade forest land in these two states and northern California, and you can produce 20 to 40 million cords of wood per year perpetually. Given another 20 to 30 million acres of land not so good, but still best suited for growing timber, and you can add another annual increment of 15 to 20 million cords. These two items represent a colossal reservoir of material for pulping notwithstanding the natural and necessary raw material requirements of other northwestern wood using industries.

Of course, here in this green land we can speculate about a future in which much of this area will be converted into farms and withdrawn from timber production, but it seems to me that in a well ordered land-using scheme such as may be expected to come with growth of population, we shall still use a very great percentage of our Pacific Coast lands for timber production because their earning power for this purpose will be greater than for farm crops, and because we have other great areas susceptible of irrigation which will, in the long run, prove to be more economical for farming purposes.

Fire Protection

For years now we have been developing fire protective organizations because we have found that if we can control fire we achieve reasonably rapid reproduction after logging. Fire, as you may or may not know, is our worst enemy during the dry summer months, and strangely enough its greatest losses usually occur in that border zone where the forests and cut-over lands join and where logging debris offers perfect fuel. This question of fire prevention and suppression is a problem in itself and can scarcely be mentioned here, other than to state that the future of our timber supply is dependent upon keeping this problem whipped. The year 1932 was the most favorable year we have experienced in this state for a long period. The year 1933 bids fair to bring a new factor into the picture through the introduction of some thirty thousand forest workers in camps throughout the region. We believe that with proper supervision these men will constitute a very material aid in combating fire and that the results may be marked enough to focus attention of Congress upon a continued policy of very much more generous fire fighting appropriations for these western states. In fact, there is good reason to believe that forest growth in this region may be placed upon a safety basis that will very materially improve its investment status.

There are many ways to recreate forests and most of them have been tried here on the Coast and shown to be feasible, so that I do not anticipate any great technical difficulties in changing over from a haphazard treatment of our forest areas to orderly forest management and the rotation of crop after timber crop.

Perpetual Crops

Naturally enough, the present depressed cycle has greatly reduced private attempts at reforestation, but as soon as business revives and money becomes available, these programs undoubtedly will be resumed. There is no question in my mind but that growing of forests to sustain a permanent wood using industry of any character capable to using the species which thrive best in this great region, is economically sound even at present, and will become more so as business conditions revive.

Even if we limit our pulping operations to such favored locations as may be found along tidewater, there remains a very considerable area of forest land of the very highest growing capacity which should remain under forest crops to perpetuity. Anyone who is determined to foresee these coast lands given over solidly to industries and agriculture should look at the forests of the Rhine Valley, and of our own New England, where they persist and even tend to increase despite relatively poor growing conditions.

If we estimate that ten million acres of land are properly tributary to these tidewater millsites or the moving of raw forest goods, and if we eliminate a third of this area as being needed for other uses during the next century, we still have a potential productive capacity of some ten million cords per year. This annual growth can best serve the pulp manufacturers and the lumber makers in communities with the result of practically complete utilization. So, I would say in conclusion that a study of our present standing timber is but a part of the picture.

Ossian Anderson Goes East On Industry Control Program

Northwest manufacturers are being represented at the national capitol in the discussions of the national industrial recovery program, by Ossian Anderson, president of the Puget Sound Pulp & Timber Co., who was recently elected president of the Manufacturers Association of Washington.

Speaking of the Wagner bill in the form in which it existed early in June, Mr. Anderson is quoted as believing it unworkable and as saying: "We are proposing that the president be given authority to deal with imports because of the low labor costs and the debased currency of those countries competing for American markets on those commodities which show a higher production cost in the United States, and import prices must be established at a level commensurate with American standards. We will also object to the license feature as being entirely unnecessary to accomplish the purpose of this legislation.

"We shall advocate that conditions imposed upon employment shall apply equally to employe and employer, that an excise or turnover tax, with exemptions perhaps for food products, low-priced clothing and drugs, take the place of the taxing program now being considered by congress, and we are opposed to the single administrator idea, and will ask that provision be made for a representative advisory committee to interpret the practical needs of industry.

"We are in thorough accord with the objectives of the pending national recovery bill and wish to submit only constructive recommendations to the end that the law may be practical, successful, and efficiently administered. This is an exceedingly vital piece of legislation and should receive the serious and active consideration of every manufacturer in the state."

KRAFT INSTITUTE MOVES

Offices of John R. Diggs, the Kraft Institute and the Paper Bag Manufacturers Institute are now located at 369 Lexington Avenue, New York City.

PROGRESS IN THE USE OF SOUTHERN PINE FOR NEWSPRINT

The developments in the use of slash pine in Georgia for the manufacture of newsprint are of interest to the nation as a whole and are of particular interest to Pacific Coast pulp and paper producers because the problem is in many respects similar to that involved in the use of Douglas fir for pulp.

No new trend in the pulp and paper industry in recent years has attracted as much nationwide publicity as has the work being done at the Georgia experimental pulp and paper plant at Savannah.

Laboratory Opened Jan., 1932

Although Dr. Herty has worked on the problem for a long time, the laboratory was opened a comparatively short time ago, in January, 1932. The first pulp was exhibited in June. Dr. Charles H. Herty heads the work, assisted by W. G. McNaughton. W. F. Allen is in charge of the testing laboratory. Bruce Suttle, F. W. Hendrix and George Lindsay are also identiefid with the laboratory, as well as a group of young chemical engineers, James Dempsey, S. W. Noble, J. S. Fox and F. S. McCall, most of them volunteers.

White newsprint made from slash pine has shown very favorable tests, it is reported. A 30-pound paper with a bursting strength of 10 to 12 pounds per square inch has been produced, it is said. The usual newsprint in use is 32 pounds with a bursting strength of 6 to 10 pounds. Pulp produced is said to be of good quality and color.

Newsprint from 7-Yr. Pine

Some of this newsprint and pulp was made from seven-year-old slash pine grown by Marion Renfroe of Brooks County, Ga., who planted rows of pine on two acres of land and cultivated corn between the rows. He found it financially profitable, and in the cultivated soil the trees grew about twice as fast as they ordinarily would. It is claimed that it is possible to get commercial pulpwood in Georgia in ten years or less. The thinnings from such stands could produce considerable pulpwood it is believed.

The species that have been used are slash pine (Pinus heterophylla), longleaf (P. Palustris), loblolly (P. taeda), shortleaf (P. echinata) and Virginia pine (P. Virginiana). It has been found that all of these species pulp approximately alike, making a pulp of good color, similar to commercial Mitscherlich pulp.

Use Green Wood

Young pines contain no heartwood, none appearing until the trees are about 25 years old. They are all sapwood, containing no resin. The laboratory at first seasoned the wood, but because of the development of sap stain, a form of fungus, which produced a gray pulp, they tried using the green pulpwood. This was found satisfactory, eliminating the sap stain, and pulping as easily as the seasoned.

The first digester runs were made at low temperatures, and running for 25 hours, 50 minutes. Gradually the cooking time was shortened and the temperature increased, until it was found that cooks could be made in 10½ hours, without injury to the pulp. Temperatures ranged from 25 degrees C. to 135 degrees C., with a maximum pressure of 75 pounds per square inch.

On one of the average cooks, for example, the temperature was increased to 110 degrees C. in two hours; by five hours it had risen to the maximum, 135 degrees C., and cooking at this temperature was carried on for 5½ hours more, or a total of 10½ hours.

Paper Tests

Pulp produced thus was then made into hand sheets after beating at two per cent consistency, for various periods of time, and tests run on the sheets produced. On one of the later cooks, which might be taken as typical, tests showed the following results: after 5 minutes beating, burst 54.3, tear 165, slowness 15.5; 20 minutes beating, burst 85.5, tear 160, slowness 18.0; 40 minutes beating, burst 94.5, tear 147, slowness 28.5; 60 minutes beating, burst 99.8, tear 129, slowness 44.4; 80 minutes beating, burst 101.0, tear 119, slowness 59.5; and after 100 minutes beating, burst 105.0, tear 103, slowness 69.0.

The yield of screened pulps obtained from the cooks is reported to be good. Maximum yield was 49 per cent, minimum 39 per cent, and the average was from 43 to 45 per cent. The yields of flat screenings are said to have been within the limits of commercial practice, with maximum yield of 6.1 per cent, a minimum of 0.13 per cent, and an average of 0.25 to 0.75 per cent.

Acid used has been only 5.5 per cent total SO_2, and it is thought that they can possibly use acid as low as 4.5 to 4.75 per cent total SO_2 and 1.0 to 1.4 per cent combined SO_2.

Groundwood Yield 93%

There is a considerable difference between the densities of spring wood and summer wood, and the fibres are different from those of spruce. For this reason refining methods must be adapted to the type of fiber. In the production of groundwood, an average yield of 93 per cent has been found. Few tests have been made on the costs of grinding young pine wood, but the laboratory staff thinks the indications are that it takes no more power than for spruce.

Early in May a group of pulp and paper leaders visited the Georgia operations under the sponsorship of TAPPI, and investigated the developments. The general consensus of opinion after the visit seemed to be that there are very promising possibilities for southern pine as a source of newsprint, but that establishment of local commercial mills is not yet justified.

Relation to Douglas Fir

Dr. H. K. Benson, head of the chemical engineering department at the University of Washington, recently called attention to the relationship between the Georgia experiments, and the problem involved in pulping Douglas fir, pointing out that young Douglas fir has many of the characteristics of the southern pines. If the matter of resin can be overcome by utilizing young pine trees, it may be possible to follow along the same lines with Douglas fir. In this case, a vast amount of western timber will be opened for pulp and paper manufacture, far in excess of possibilities in any section of the country.

Various Pacific Coast companies are carrying on experiments on the pulping of Douglas fir, and hope the problem will be entirely solved in the near future. The ultimate success of this work, and the further development of the Georgia pine process will be most interesting to watch and will probably have considerable influence in future trends of the pulp and paper industry.

T·R·A·D·E • T·A·L·K

of those who sell paper in the western states

Al Enquist, 33 Years With Zellerbach, Recalls Early Paper Selling Days

To be on the same job for a third of a century is an unusual experience in the busy commercial world, but the honor of accomplishing this goes to Al Enquist of the Zellerbach Paper Company, who recently completed his thirty-third year of service with the company, having gone with the concern February 1, 1899.

He started in as a salesman in the country and all these years has been actively engaged in the sales force, travelling out of San Francisco. When asked about the early days of the paper industry, Mr. Enquist said, "When I went to work in the paper business all the book paper was quire folded, that is, twenty-four sheets in the count, folded over. No paper was packed flat in those days. If we wanted to cut a sheet down, we pressed the fold and sliced it with a sharp knife. Then it was sent to the cutting machine to have the edges trimmed. The paper wasn't always squared up, but we didn't have intricate register jobs in those days.

"There was no range of grades in bond papers. In fact, the house only stocked Crane's Bond in the first grade, and another line named 'Commercial'. The range of grades was confined to flats and linens, and the linens were very popular. There was a limit in sizes and weights, too, as compared with the great variety available today.

"I have seen great improvements and progress made in the paper industry over these many years. Now the printer and paper buyers can get a paper for any requirement made exactly for the purpose the user has in mind."

In his early days Mr. Enquist traveled in California from Bakersfield to the south, as far north as the Oregon line, and likewise along the coast from San Luis Obispo to Eureka, and as far east as Tonopah and Goldfield, Nevada. The jumps were long. Many times he traveled by freight train, paying a passenger far and riding in the caboose. The train would pull into a town and the engine would stop at the station. The caboose would be forty to fifty cars down the line. No matter what kind of weather it was, the salesman had to get out with his sample case weighing fifty pounds in one hand and his grip of personal effects in the other, and trudge along the gravel beside the track up to the station and then over to the hotel.

Calls in the surrounding territory would be made with horse and buggy. It took a long time to cover the territory.

Mr. Enquist knew the printers and newspaper publishers over the entire territory. They called him "the smiler" as he was always happy, never had a tale of woe, never decried the times, and always was optimistic as to the paper business.

He is still on the job today, but his selling is confined to the office and to a restricted country territory. He still has a love for the printing business and is glad that he chose paper selling as his life vocation. Many of the old timers, when they come to San Francisco, always call upon Enquist and chat over the old times.

For a number of years Mr. Enquist made regular trips to the Hawaiian Islands in the interests of his company, calling upon the customers in Honolulu and some of the other towns.

The other day he was reminiscing. He said: "When I think of the hardships we had, riding on freight trains, driving in a horse and buggy, hiking along muddy roads, stopping at hotels that had no heat in the rooms, and whose chief bill of fare was generally beef stew, mutton chops, and baked heart, I cannot refrain from commenting upon the salesman of today who travels in his automobile, covers a large territory each day, and generally gets home for the evening. The world does move, and the paper business has moved with it."

NEW EVERETT BROADSIDES

Several new broadsides have recently been received from the Everett Pulp & Paper Co., Everett, Wash., all of them strikingly attractive and worthy of much favorable comment.

Everett Art Book is used for one, in which its quality of cleanliness or clean look when printed, is emphasized by the use of art work and halftones depicting scenes in Holland.

Another is Everett M. F. India, featured as the proper foundation for good printing, and following this idea through with illustrations of the foundation site of Hoover Dam. The artwork and layout are particularly pleasing.

The Clipper Book broadside, printed in black and a cool blue, has a nautical air, with photographs of modern ships and a flat perspective map of the world showing major steamship routes. By inference it compares today's Everett papers with earlier grades, much as one would compare an early clipper ship to the modern liners.

EUGENE BRANCH CHANGES

John M. Todd, for the past ten years in charge of sales in the Eugene, Ore., territory for the Zellerbach Paper Co., has moved to the San Francisco division. R. E. Odell, office manager at Eugene, has taken over the sales work there.

R. HAMILTON INJURED

Russell Hamilton, San Francisco, well known in paper circles, was seriously injured in an automobile crash on the Skyline Boulevard, near that city, early in May. Mr. Hamilton is a son of W. C. Hamilton, founder of the Hamilton Paper Mills of Miquon, Pa.

DAHL VISITS COAST

Ed Dahl of the Groff Paper Co., St. Paul, manufacturers of napkins, was on the coast recently visiting his firm's representatives, The Johnson Locke Mercantile Co. and their associates. Mr. Dahl reported business good and said he was looking for an increase in the price of napkins.

Pacific Pulp & Paper Industry Represented at London Conference

Kemper Freeman, son of Miller Freeman, publisher of Pacific Pulp & Paper Industry, left Seattle May 27 for London, planning to arrive there prior to the opening of the international economic conference June 12.

Mr. Freeman will represent Pacific Pulp & Paper Industry and affiliated publications, in the interests of the basic Coast industries served by the journals. He will maintain close contact with the proceedings of the conference, and if any action is taken or contemplated which would have an important bearing on the welfare of the western industries, will see that prompt and complete information is transmitted here.

The industries on the Pacific Coast have much at stake at the conference. Concessions may be sought from this country which would seriously affect our fisheries, lumber industry and the pulp and paper manufacturers, etc. It thus is of considerable importance to the West that personal, independent contact be established.

Mr. Freeman is a graduate of Stanford University, where he specialized in economics. During the period when Miller Freeman was engaged in his work as chairman of the foreign exchange committee of the banking and industrial conference, Kemper Freeman served as his assistant and secretary. He therefore is fully conversant with the economic, financial and industrial problems of the country and is well qualified to interpret developments at the London conference.

The decision of Pacific Pulp & Paper Industry to have its own representative at the conference is based on the fact that no section of the United States is more concerned with the proceedings than the Pacific Coast, in view of the effect conference results may have on the fundamental industries in this section.

MANY EASTERN PAPER MEN TOUR COAST

This year's movement of paper mill men from east to west is heavier than in 1932, according to Louis A. Colton, San Francisco, vice-president and director of purchases of the Zellerbach Paper Co., indicating that the easterners apparently expect some business on the coast.

Among the visitors at Mr. Colton's office in April and May were T. F. Donlan, president of The Dobeckum Co., Cleveland, large manufacturers of cellophane bags, E. C. Colvin, sales manager of the Appleton Coated Paper Co. of Appleton, Wis., C. L. Griffes, president of the Chicago Cardboard Co., manufacturers of mat boards, and Clyde M. Morgan of the S. D. Warren Co., Boston. J. B. Jones, Los Angeles, representative of the Beckett Paper Co. of Hamilton, Ohio, also recently visited San Francisco, as did Henry Burgee, sales manager of the Parsons Paper Co. of Northampton, Mass., and John L. Forsythe, Los Angeles paper mill representative, who handles the lines of the Sorg Paper Co. of Middleton, O., the Michigan Paper Co. of Plaineville, Mich., and the New York-New England Co. of Holyoke, Mass.

D. L. JEFFRIES MARRIED

Donald Lowell Jeffries, son of Frank E. Jeffries, manager of the Tacoma Paper & Stationery Co., was married in San Francisco, May 4, to Miss June Schuyler Munk of that city. Mr. and Mrs. Frank E. Jeffries were down from Tacoma to attend the wedding.

Donald Jeffries is with the San Francisco headquarters office of Blake, Moffitt & Towne, of which the Tacoma firm is a subsidiary. He is assistant manager of the printing paper department and has charge of laboratory and technical work for the company. He is a graduate of the University of Oregon and of the post graduate school of printing at the Carnegie Institute of Technology at Pittsburg. In addition he has had considerable mill experience.

SCHMITT LOSES LEG

Charles J. Schmitt, well-known San Francisco paper box manufacturer, recently suffered amputation of a leg. Mr. Schmitt for years has been active in the Pacific Coast Paper Box Manufacturers Association and his many friends will regret to hear this bad news.

ARTHUR WOODSIDE TWENTY-FIVE YEARS WITH ZELLERBACH

Arthur Woodside of the Zellerbach Paper Company has just celebrated his twenty-fifth year of employment with this paper house. He started to work for the company on February 17, 1908, as office boy in the San Francisco store. He occupied various positions in the office and then was advanced to billing clerk.

In January, 1919, he was transferred to the Fresno Division to be the office manager, but in addition to this duty he engaged likewise in the selling and purchasing departments.

About May, 1920, Mr. Woodside joined the headquarters staff in San Francisco for the purpose of compiling a new printing paper catalog.

The Zellerbach Paper Company purchased the L. J. Hopkins Company of Sacramento in 1920 and Mr. Wodside was transferred to that division, where he worked for six months as a printing paper salesman, covering the territory north of Klamath Falls, Oregon, and as far east as Winnemucca, Nevada.

Twelve years ago he was again transferred to the headquarters staff in the purchasing department, where he is presently engaged.

SCOTT REPORTS INCREASING BUSINESS

Vernon C. Scott, president, Packer-Scott Co., Portland, reports that business these days 'looks more like 1929" than it has since 1929. "In the past," he says, "business has been holding up fairly well during the fore part of the month and then falling off severely towards the close. This year it is holding up steadily throughout the month. And it is not just exceptional big orders that account for the increased volume, but just the regular run of orders, only they are larger."

HAWLEY OFFICE MOVED

Lloyd Riches, former San Francisco representative of the Hawley Pulp and Paper Co., but now in Portland, was back in the northern California metropolis on a visit recently and reported he likes his new post fine.

The San Francisco offices of the Hawley company have been moved from the Robert Dollar Building to the Western Cooperage Co. headquarters in that city.

Zellerbach Personnel Changes

Announcement has been made by the Crown Zellerbach Corporation of a number of personnel changes in its northern organization.

G. P. Berkey, in addition to his duties as vice president of Crown Willamette Paper Company at Portland becomes vice president of Pacific Mills, Ltd., and will exercise managerial control over operations of Pacific Mills, Ltd., at Ocean Falls and Vancouver, B. C. Mr. Berkey's headquarters will continue at Portland, Oregon.

Frank N. Youngman, vice president of Pacific Mills, Ltd., a subsidiary, is transferred from Vancouver to Portland to direct Crown Zellerbach mill sales in the Pacific Northwest and Canada, including Canadian exports. Mr. Youngman will work under the direction of R. A. McDonald, San Francisco, vice president and sales manager of the company.

D. G. Stenstrom, formerly resident manager of Pacific Mills, Ltd., mill at Ocean Falls, B. C., becomes vice president of Pacific Mills, Ltd., and will be located at Vancouver and has been assigned to contact the company's export customers.

Frank A. Drumb, an assistant manager of the Crown Willamette mill at Camas, Wash., takes Mr. Stenstrom's place as mill manager at Ocean Falls, B. C.

D. S. Denman, logging manager of the Crown Zellerbach Corporation, now located at Portland, Oregon, has been transferred to Seattle and will have charge of the company's activities there as vice president of the corporation's subsidiaries, Washington Pulp & Paper Corp., National Paper Products Company and Crown Willamette Paper Company.

CALIFORNIA DAILIES BUY SWEDISH NEWSPRINT

According to an item in a recent issue of "Editor & Publisher", several California newspapers have recently signed new contracts for foreign newsprint. The statement says:

"Reports that a Swedish newsprint manufacturing concern was selling newsprint at $8 under the domestic level were confirmed by Editor & Publisher in New York this week.

"Editor & Publisher learned that the McClatchy newspapers on the Pacific coast had recently signed contracts with Homans-Burke, a Swedish firm, which is to supply newsprint for the Sacramento (Cal.) Bee and the Modesto (Cal.) News-Herald at $8 under the domestic price, which is $45 on the coast.

"If the Pacific coast newspapers get the $5 temporary discount announced last week in New York by the International Paper Company this would mean that the McClatchy papers would get their newsprint for $32.50 per ton.

"The McClatchy contract with the Swedish firm, which is scheduled to start Jan. 1, 1934, is for five years.

"The McClatchy newspapers are under contract with the Powell River Paper Company to furnish newsprint for the Fresno (Cal.) Bee.

"The San Francisco Chronicle has been using the Swedish newsprint for two years, according to information obtained by Editor & Publisher."

FRED WIGHT PASSES

The Pacific Coast pulp and paper industry lost one of its beloved pioneers when Fred G. Wight, retired vice-president of the Crown Willamette Paper Co., died suddenly at his Piedmont, Calif., home May 12, at the age of 64 years.

Mr. Wight was a connecting link between the early days of western paper manufacturing and the new era of large production, for his first association with the industry was in the late eighties when he joined the staff of Wm. Pierce Johnson, then operating one of the early mills, that of the California Paper Co. at Stockton. Mr. Johnson later formed the Willamette Pulp and Paper Co. and Mr. Wight became secretary-treasurer and later vice-president, continuing in that capacity following the formation of the Crown Willamette Paper Co., in 1914.

Mr. Wight's activities were in the sales department, mainly handling newsprint, and he was intimately acquainted with newspaper publishers the length of the coast.

He was active in Masonic work, a lover of all outdoor sports, a golfer and excelled as a story teller. He frequently was a participant in the annual Del Monte conventions of the Pacific States Paper Trade Association and occasionally presided at the golf dinners at these events.

Mr. Wight is survived by a widow and three children.

WASHINGTON CHAMBER URGES HOME NEWSPRINT USE

The Washington State Chamber of Commerce recently passed a resolution presented by the president of the Everett body, urging that all Washington newspapers use only home produced newsprint, as a means of increasing employment in the mills and forests.

Copies of the resolution were sent to every newspaper and magazine in the state together with a letter asking for their comments.

ANOTHER TEREN MOVES WESTWARD

George Teren has left the post of superintendent of the American Writing Paper Mills, Holyoke, Mass., and is now superintendent of the Nekoosa Edwards Paper Co., Port Edwards, Wisc. He is a brother of Nils Teren, associated with F. W. Leadbetter paper mill operations in the Pacific Northwest.

PAPER IN POLAND

Four Polish paper mills, members of the paper cartel, ceased production in 1932, while the other24 plants were run at only about 50 to 60 per cent capacity, according to a recent report from Consul G. W. Perkins, Warsaw. The output of the Polish mills totaled 116,000 metric tons (metric ton equals 2,205 pounds), including 46,000 tons of roll newsprint. Paper consumption in Poland during 1932 was estimated to have decreased by 8 per cent compared with the preceding year.

A. P. W. SALES MANAGER COMES WEST

E. L. Stumpf, sales manager of the A. P. W. Paper Co., was out from Albany, N. Y., early in May and visited San Francisco, Los Angeles and Salt Lake in company with C. J. Allair, San Francisco, coast sales manager.

FINNISH EXPORTS CONTINUE TO INCREASE

Exports of paper from Finland during the first quarter of 1933 totaled 72,438 metric tons (metric ton equals 2,205 pounds) as against 63,372 tons during the corresponding period last year. Sulphite pulp shipments during the same period increased from 110,087 tons to 127,970 tons and sulphate pulp declined from 50,675 tons to 36,411 tons. Exports of mechanical groundwood increased from 33,411 tons to 41,267 tons.

Industry Organizing Under National Recovery Measures

The reduction of $5 per ton in the price of newsprint on the Pacific Coast, bringing the level down to $40, approximately 38 per cent below the figure in 1929, has emphasized the need of uniting the entire pulp and paper industry under a plan to make the national industrial recovery measures effective in this business.

While most paper lines on the Coast have shown firming tendencies, the demoralization of the newsprint price has removed any possibility of profit in this branch of the business. While the western producers appear to be in better shape than those in the East and Canada, they are at least partially at the mercy of national competitive conditions, and a solution of the newsprint problem is now even more vital than before.

It is learned that Coast manufacturers were represented in a meeting in the East early in June, attended by representatives of American paper manufacturing concerns, representing about 85 per cent of the capacity of the industry. The meeting was designed to organize the industry to eliminate ruinous competition as far as the law permits.

A committee was named to formulate a code to meet the requirements of the industrial recovery bill, it is reported, but the newsprint industry was to be regarded as a separate entity and not within the group of manufacturers of other paper products.

There were more than 90 representatives at the New York meeting June 2, at which S. L. Willson was elected coordinator for the paper industry. The A. P. & P. A. will be reorganized to function under the National Recovery Act.

B. C. BONDHOLDERS TO FOREGO INTEREST

Sharp reduction in earning power and the necessity of preserving the company's working capital caused British Columbia Pulp & Paper Company to put a proposal before the bondholders to accept income script for the regular coupons for 1933 and 1934 and to cancel sinking fund payments until November 1, 1935.

Last year the company had an operating loss, before interest and depreciation, of $76,206. Reduction in world prices for the company's products, and the disorganization of markets consequent upon the continued depreciation in currency, particularly in the Orient, made it advisable not to rely upon any great improvement in the immediate future. Economies effected in recent months have not been sufficient to maintain the company's working capital position, so that the bondholders are now asked to forego interest payments over the next two years.

In addition to paying interest in the form of income script, the resolution passed by the company also provides that until the script has been retired there will be no payment on any other funded debt or capital stock and that any such payments will constitute a default under the first mortgage trust deed.

At the end of last year the company's capital set-up included $3,321,000 of first mortgage bonds; $1,445,400 of general mortgage bonds; $556,200 of 7 percent cumulative preference stock and 100,000 shares of no par value common stock.

No dividends have ever been paid on common stock, while distribution on the preferred was discontinued after August 1, 1931. On May 16, 1932, the general mortgage bondholders approved the postponement of interest payments due in 1932 and 1933 until November 1, 1934, interest to accrue at 7 percent on deferred payments, while sinking fund payments due in 1932, 1933 and 1934 were cancelled.

SWEDISH ANNUAL OUT

The 1933 Year Number of the Swedish Timber and Woodpulp Journal has just been issued.

The Year Number is written in the Swedish, English and French languages and its content is devoted to the timber, woodpulp and paper industries. It contains market reviews for the last year for these industries together with many special articles.

The Year Number, which includes 146 pages, may be ordered at the office of A/B Svensk Travaru-Tidning, Kungsgatan 17, Stockholm. The price is 3/6, postage included.

LEADBETTER REPORTS LOSS

The Leadbetter group of paper mills ended the year 1932 with a net loss of $424,410 according to a report furnished stockholders. This compared with a net profit of $137,277 for the year 1931. The mills are the Oregon Pulp & Paper Company, Salem, the Columbia River Paper Mills, Vancouver, Wash., and the California-Oregon Paper Mills, Los Angeles. Control of common stock is held by the Columbia River Paper Company, headquarters in Portland.

President Leadbetter explains to stockholders that the bulk of the operating loss is offset by depreciation charges. Bond retirements for the three mills during 1933 totaled $162,000.

A four-year extension in the payment of bond interest has been secured through agreement of more than 90 per cent of the mills' bondholders.

Current liabilities and bank loans of the three mills have been reduced during 1932, Leadbetter reports, in addition to the material reduction made in bond principal.

"Very little betterment in the operating conditions as shown last year has occurred since January 1, but at the present writing the mills are again reasonably operating and are maintaining themselves in a current position that enables them to take care of all requirements," Leadbetter says in a recent letter to stockholders. "With the increased economies that have been effected in all departments and a slight tendency towards a revival of business, indications are somewhat better than at the same period last year."

APPLETON WIRE WORKS INC. ANNOUNCE PHOSALOY WIRE

Walter S. Hodges, Pacific Coast representative for the Appleton Wire Works Inc. of Appleton, Wisconsin, advises that this company (who operate their own wire drawing and annealing plant) have concluded several years of experimental work with the new Phosaloy bronze and many of the new wires have been sent to the Pacific Coast during the past year. Specifications are very rigorous as to composition and temper of this wire, for which reason it was decided to move this improved product under the registered trade mark of Phosaloy.

These wires also have the usual staggered weave, supplied by Appleton to prevent suction box scoring. There is no advance in the price of this wire over regular phosphor bronze list.

MARCH NEWSPRINT PRODUCTION

Production in Canada during March, 1933, amounted to 137,078 tons and shipments to 140,694 tons, according to the News Print Service Bureau. Production in the United States was 76,566 tons and shipments 77,857 tons, making a total United States and Canadian newsprint production of 213,644 tons and shipments of 218,551 tons. During March, 21,381 tons of newsprint were made in Newfoundland and 1,478 tons in Mexico, so that the total North American production for the month amounted to 236,503 tons.

The Canadian mills produced 86,306 tons less in the first three months of 1933 than in the first three months of 1932, which was a decrease of 18 percent. The output in the United States was 63,223 tons or 22 percent less than for the first three months of 1932, in Newfoundland 4,932 tons or 7 percent less, and in Mexico 805 tons more, making a total decrease of 153,656 tons or 18 percent.

Stocks of newsprint paper at Canadian mills are figured at 50,872 tons at the end of March and at United States mills 23,005 tons, making a combined total of 73,877 tons compared with 78,784 tons on February 28, 1933.

NORTH AMERICAN PRODUCTION

	Canada	United States	Newfoundland	Mexico	Total
1933—March	137,078	76,566	21,381	1,478	236,503
1933—Three months	403,227	218,095	61,062	4,018	686,402
1932—Three months	490,330	281,438	65,994	3,213	840,975
1931—Three months	539,899	291,275	72,302	3,860	907,336
1930—Three months	604,559	349,780	67,940	4,858	1,027,137
1929—Three months	618,893	342,052	59,607	4,958	1,025,510
1928—Three months	573,307	353,509	54,561	3,999	985,376
1927—Three months	487,804	388,555	51,039	3,497	930,895
1926—Three months	429,444	415,591	40,886	3,076	888,997
1925—Three months	363,866	371,545	15,758	3,046	754,215

FEBRUARY PAPER PRODUCTION IN JAPAN

Paper production and sales in February, 1933, in Japan were as follows:

	Production, Lbs.	Sales, Lbs.
Printing Paper (Superior Quality)	11,025,487	12,495,942
Printing Paper (Ordinary Quality)	8,967,437	10,707,144
Drawing Paper	3,618,051	4,538,046
Simili Paper	8,004,993	7,408,516
Art Paper	1,275,178	1,161,545
News Printing Paper	46,713,006	47,680,498
Sulphite Paper	4,224,015	3,234,835
Colored Paper	1,537,817	1,883,037
Packing Paper	13,557,935	10,197,504
Japanese Paper	1,316,698	1,150,631
Board Paper	6,363,049	6,971,441
Sundries	5,238,099	4,561,788
Total	111,841,765	111,990,927

BRAZILIAN 1932 WOOD PULP IMPORTS

Imports of wood pulp into Brazil during 1932 totaled 43,742 metric tons as against 29,081 metric tons in the preceding year. Germany, the United Kingdom, Norway, Sweden, and Finland all shipped greatly increased amounts. None is recorded as coming from the United States or Canada.

JAPAN'S PULP IMPORTS

Japan's imports of chemical pulp in February, 1933, were as follows (amounts stated in lbs.): From Canada, 7,753,733; U. S. A., 6,693,067; Sweden, 2,679,200; Germany, 786,667; Norway, 1,009,733; Czechoslovakia, 112,133; China, 133; Europe, 114,667; total, 19,149,333.

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES

MARCH, 1933

Compiled by the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce
(Figures Subject to Revision.)

PULP WOOD

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
Countries—												
Canada	1,969	11,135	.....	.....	9,177	70,067	4,909	23,044				
Total	1,969	11,135	.....	.....	9,177	70,067	4,909	23,044				

Total imports of Pulpwood, March, 1933—16,055 cords; $104,246.

WOOD PULP

	Mechanically Ground				Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		Soda Pulp, Unbleached and Bleached	
	Unbleached		Bleached											
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
COUNTRIES—														
Czechoslovakia	.....	.....	.....	.....	496	13,595	1,198	47,351	.....	.....	.....	.....	.....	.....
Estonia	.....	.....	.....	.....	179	4,781	.....	.....	.....	.....	.....	.....	.....	.....
Finland	467	6,261	175	2,367	5,327	169,498	1,028	45,560	1,403	33,185	7	282	.....	.....
Germany	.....	.....	.....	.....	2,128	57,535	3,115	124,283	100	1,590	.....	.....	.....	.....
Latvia	.....	.....	.....	.....	101	2,118	.....	.....	.....	.....	.....	.....	.....	.....
Lithuania	.....	.....	.....	.....	100	2,531	.....	.....	.....	.....	.....	.....	.....	.....
Norway	200	2,518	25	311	2,763	71,211	3,319	129,136	1,139	27,923	.....	.....	.....	.....
Poland and Danzig	.....	.....	.....	.....	.....	.....	.....	.....	147	2,615	.....	.....	.....	.....
Sweden	450	8,241	351	5,586	10,841	313,738	6,133	236,910	9,313	242,681	71	5,337	.....	.....
Canada	6,425	107,233	.....	.....	3,866	119,920	15,368	837,625	676	30,497	1,478	131,796	170	5,748
Total	7,542	124,253	551	8,264	25,801	754,927	30,161	1,420,865	12,778	338,491	1,556	137,415	170	5,748

Total imports, all grades woodpulp, March, 1933—78,560 tons; $2,790,005 (Includes 1 ton, $42, in other pulp not listed above).

S·A·F·E·T·Y +

+ be careful – first, last, always

•●•

Have safeguards prevented any accidents in your department?

At the beginning of the safety movement, it generally was believed that accident prevention was a matter of enclosing or safeguarding hazards so that personal contact would be impossible. Later studies, however, have shown that only about 15 per cent of industrial accidents are preventable by safeguarding alone. Not only are there instances where safeguards are impractical, but individual practices usually are more conducive to accident occurrence than the hazards found in equipment. On the other hand, certain safeguards (such as those designed to protect the operator at the point of contact, or to cover gears, pinions, fly-wheels and drive belts, particularly near working places and passageways) usually remove the respective hazards. In some instances, changes in processes are found to overcome hazards.

PULP AND PAPER MILLS IN THE STATE OF WASHINGTON

Statement of Accident Experience for March, 1933

Company—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Fibreboard Products, Inc., Sumner	18,643	0	0	0	0	1
National Paper Products Co., Port Townsend	63,667	0	0	33	.518	2
Inland Empire Paper Co., Millwood	36,851	0	0	27	.733	3
Crown Willamette Paper Co., Camas	183,493	3	16.4	123	.670	4
Longview Fibre Co., Longview	76,642	3	39.1	24	.313	5
Grays Harbor Pulp & Paper Co., Hoquiam	50,354	2	39.7	40	.794	6
Fibreboard Products, Inc., Port Angeles	22,232	1	45.0	21	.945	7
Washington Pulp & Paper Corp., Port Angeles	60,176	3	49.9	3,638	60.456	8
Everett Pulp & Paper Co., Everett	78,899	4	50.7	105	1.331	9
Rainier Pulp & Paper Co., Shelton	54,029	3	55.6	21	.389	10
Puget Sound Pulp & Timber Co., Everett	52,674	3	57.0	20	.380	11
Puget Sound Pulp & Timber Co., Bellingham	28,312	2	70.6	12	.424	12
Weyerhaeuser Timber Co., Longview	37,976	3	79.0	89	2.343	13
Columbia River Paper Mills, Vancouver, Wash.	40,863	5	122.4	65	1.591	14

The following mills did not report: Pacific Straw Paper & Board Co., Pacific Coast Paper Mills. The following mills not in operation: Everett Pulp & Paper Co. (West Tacoma Plant), Tumwater Paper Mills, St. Regis Kraft Co., Puget Sound Pulp & Timber Co., Anacortes, Shafer Box Co.

Two Stage Continuous Batch Beating and Automatic Beater Room Operation*

By C. W. MORDEN†

In a paper presented at the annual meeting of TAPPI in New York City, in February, 1932 (page 227 of the 1931-32 Technical Association Papers) the writer discussed "Continuous Batch" beating and STOCK-MAKER, a vertical type, automatic beating machine employing the "Continuous Batch" method.

The "Continuous Batch" method of beating is a Pacific Coast development and STOCK-MAKER a Pacific Coast product, so it may, therefore, be of particular interest to the Pacific Section members of TAPPI to hear of some further developments in this beating method and equipment and of a broadened field of application for this type of treatment.

Single-stage "Continuous Batch" beating has now been in very successful operation for over two and one-half years on a wide range of papers. As a result many of you know something of this beating method and of the machine employing it. However, it may be well to again briefly state the essentials of the method as follows:

The "Continuous Batch" method consists of automatically drawing off at timed intervals from a continuous supply a measured batch quantity of stock and introducing it under pressure into a recirculating type treating cycle, giving it a rubbing and brushing treatment therein under high hydrostatic pressure for a pre-determined time and then automatically discharging it from the cycle by displacement with the next batch of untreated stock introduced.

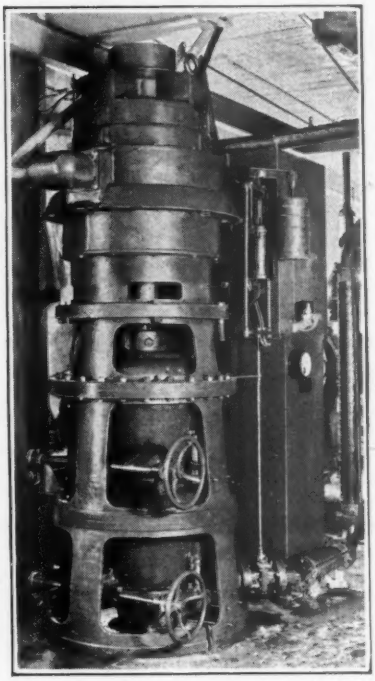
The fundamentals of this principle of treatment are now used not only in single-stage treatment as in the past, but also in multi-stage treatment and STOCK-MAKERS are now built in single-stage, two-stage and twin two-stage type machines embodying this principle in their operation. In this enlarged application of the "Continuous Batch" method of treatment are included new principles and new elements of control of the treatment which it is one purpose of this paper to discuss.

In order to get a picture of the situation let us first consider the make-up and operation of a single-stage treating element, using for this purpose a description and a drawing which previously appeared in print but will be repeated here:

The Treating Element and Its Operation

The sectional drawing shows the internal arrangement of the treating element. Arrows indicate how the stock is recirculated while being treated.

The treating element consists of a conical shaped rotor with a bed plate shell surrounding it. This bed plate shell may be adjusted up or down by the hand wheel shown in the illustration of the complete machine. This adjustment regulates the treatment given the stock. Outside the bed-plate shell is another shell, separated from the bed-plate by a space which forms an annular passageway



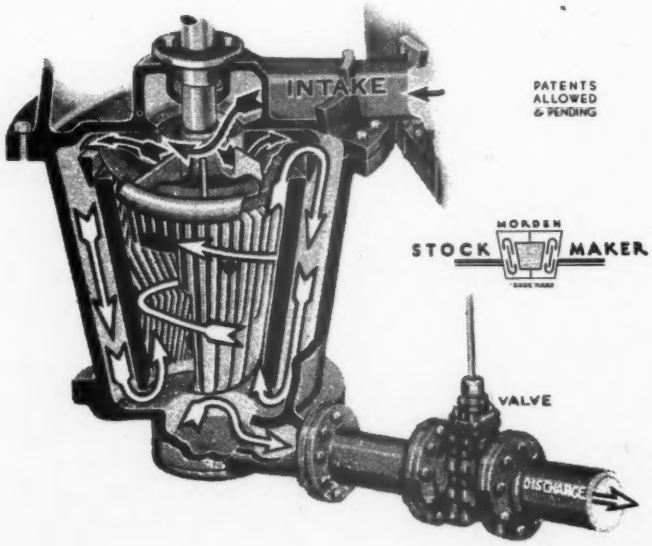
through which the stock is uniformly recirculated during treatment. This passageway also serves as a displacement chamber from which treated stock is displaced when a new batch of raw stock is introduced into the machine.

The impeller above the rotor draws in this raw stock from the machine's accumulator tank at timed intervals, and at the same time forces the treated stock out of the machine through the automatically operated discharge valve. This impeller also maintains the hydrostatic pressure within the treating element. Recirculation during treatment is maintained by the pumping action of the conical rotor which draws the stock up between the rotor and bed plate shell and then returns it through the annular circulation passage to be treated again, or, when the treating period is over, to be forced out of the machine.

A two-stage STOCK-MAKER unit is shown in the accompanying photograph. This is a high capacity machine, having the beating capacity of four 1500-pound beaters.

To consider the new principles in beating technique that enter into the operation of such a machine, let us first consider the make-up of this two-stage unit. It has its two treating elements, of the type shown in the sectional drawing, located one above the other with their rotors connected together and both driven by the motor on the top of the machine. The intake of the top treating element connects with the accumulator tank at the side of the machine into which the stock to be treated is delivered. The outlet at the bottom of the top treating element connects directly to the inlet of the lower treating element and the outlet of this element leads out at the bottom of the machine through an automatic outlet valve. This valve opens at timed intervals to let a batch of stock out of the machine and then closes and seals the stock in the machine under pressure during the time it is being treated. Hand wheels control the setting of the bed plate shell in each treating element and thus the amount of work done in terms of power input can be regulated and controlled separately for each of the two treating elements of the machine.

With this much by way of description we may now consider wherein such a two-stage series hook-up differs in its opera-



*Presented at the Spring meeting of the Pacific Section of The Technical Association of the Pulp and Paper Industry, Longview, Washington, May 5-6, 1933.

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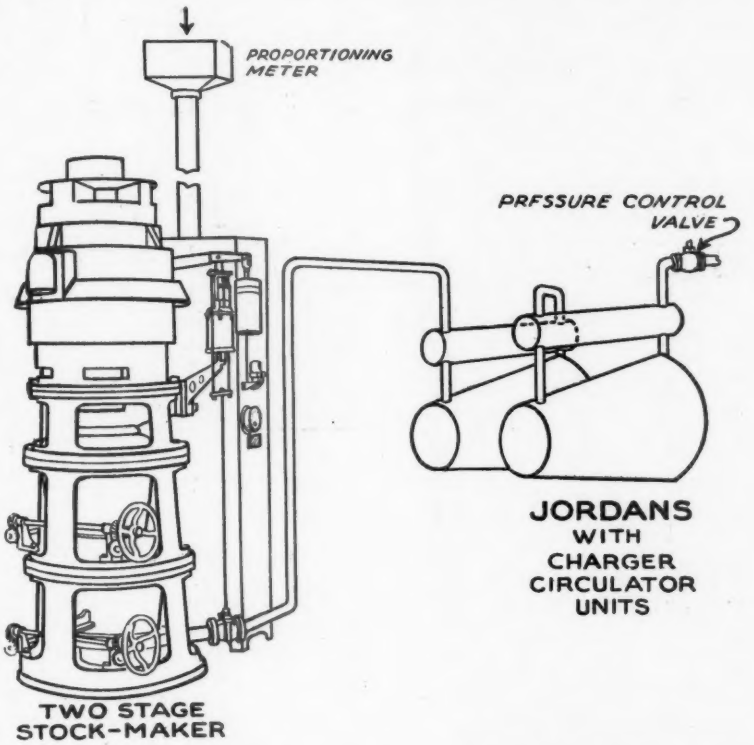
tion and the control of the treatment given from what might be ordinarily expected.

Mechanically such a machine is a two-stage unit but in its operation it may be made to function either two-stage or single-stage or as a combination of the two. In other words, if the stock conditions or the results wanted are such that it is not desired to treat in two stages a single-stage treatment may be given in the two-stage machine or a blended treatment may be had where part of the stock is given two-stage treatment and part of it single-stage. This is controlled entirely by the quantity of stock that is automatically measured into the batch going to the machine. It should be recalled, from the description of the single-stage treating element which has already been given, that when a fresh batch of stock enters the machine it is first forced into the displacement chamber which surrounds the treating element proper and displaces treated stock therefrom. This displacement chamber is the feature of the machine that makes it possible to obtain the types of treatment referred to simply by controlling the batch going to the machine. For example, if only sufficient stock is included in the batch to fill the displacement chamber in the first stage of the machine this gives full two-stage beating in the machine as a whole, for this batch quantity is first treated in the first stage of the machine and when it is displaced from this stage by the next incoming batch of untreated stock it is forced into the second stage and there given its second treatment. If, however, the batch quantity introduced into the machine is doubled it will displace treated stock from the displacement chambers of both the first and second stages of the machine with the result that each of these stages is then working on untreated stock and the effect is the same as if the two-stages were being run in parallel. In the same way, by changing the quantity of the batch so that it is intermediate in volume between that for two-stage and for single-stage treatment a blended treatment is obtained in which part of the stock is given two-stage treatment and part of it single-stage and the two thoroughly mixed. Thus any type of treatment may be given that a particular stock or a particular result calls for.

Staging STOCK-MAKER units in this way has the effect of increasing their capacity in direct proportion to the number of stages used. The two-stage machine, for example, has twice the capacity of the single-stage and the twin two-stage machine has four times the capacity of the single-stage. In this machine two two-stage units are combined into a single machine with its automatic features so arranged that its batches of stock are introduced in proper sequence, first to one of the two-stage units and then to the other. The effect is that of running two two-stage machines in parallel. These staged machines retain the high power economies of the single-stage machine which, for a given amount of treatment, averages approximately one-half that of tub beaters. In terms of tonnage stock handled for a given degree of treatment each stage has a capacity equal to that of two 1500 pound beaters, so that the single-stage machine is equivalent to two 1500 pound beaters, the two-stage to four and the twin two-stage to eight. The two-stage machine occupies the same floor space, roughly 4½x6', as does the single-stage machine, and the twin two-stage machine a floor space roughly 5x12'. In other words, approximately one-twentieth the floor space that would be required by tub beaters.

That this method of beating uses much less power and produces better paper than the regular beating method with better all-around strength development and a much closer control both of the beating and of the paper machine operation has been proven by many mill performance tests on Kraft, soda, sulphite and rag content stocks and by the daily production in regular mill service of consistently high quality paper in many of the standard grades. In making the performance tests referred to these were made on as nearly a directly comparative basis as possible by connecting up the equipment so that a part of the test on a given furnish could be run by the regular method and the balance with STOCK-MAKER treatment.

To this point we have considered multi-stage "Continuous Batch" beating treatment without reference to the Jordan treatment that follows it. Now, however, there has been developed a further application of the "Continuous Batch" treating method by which it is applied to the Jordan treatment which follows the STOCK-MAKER treatment.



Jordans are generally used after STOCK-MAKERS to provide for such cutting action as the stock may require. The action of STOCK-MAKER is that of brushing and rubbing the fibre rather than a cutting action and for such cutting as is required the Jordans are used.

Continuous Batch Jordan Treatment

The application of the "Continuous Batch" method to Jordans has the effect of permitting them to operate on a recirculating, sealed-in pressure cycle, timed to that of STOCK-MAKER, and permits the maintenance of a high controlled hydrostatic pressure in the Jordans, with normal power usage and without excessive end thrust of the Jordan plug. This elimination of excessive end thrust is due to the balanced pressure effect of the STOCK-MAKER method of charging the Jordans. By this method the Jordans are always running full of stock and maximum results and more flexible control of the Jordan treatment are made possible.

If two Jordans are used in this way, each equipped with a Continuous Batch Charger Circulator Unit as shown in the accompanying sketch, either single-stage, two-stage or a blended treatment may be obtained with them as determined by the type of treatment for which the STOCK-MAKER ahead of them is set. One advantage of this arrangement is that the hydrostatic pressure which is developed in STOCK-MAKER is carried through to the Jordans and the Jordans can thus be pressure operated with normal power usage. The amount of this Jordan pressure may be varied as desired and if wanted can be made as high as forty-five pounds when a two-stage unit is used ahead of the Jordans.

Thus both beating and Jordan treatment may be logically tied in together and made fully automatic and closely controllable.

Automatic Beater Room Operation

The next step, in order to make the entire room operation automatic is to provide for automatic delivery and metering of all of the elements that go into the stock furnish.

A proportioning meter for this purpose would be located just ahead of STOCK-MAKER as indicated in the sketch already referred to. A proportioning meter for this purpose is now under development but its details will not be further discussed in this paper.

Many modifications in the arrangements and details of this system of stock

(Concluded on page 50)

STATISTICAL SECTION

World-Wide Statistical Information of the Pulp and Paper Industry

United States

ESTIMATED U. S. WOOD PULP PRODUCTION 1932*

(Tons: 2,000 lbs.)

Grades—	
Total—All Grades	**3,660,000**
Mechanical	1,160,000
Sulphite—Total	1,145,000
Sulphite, Bleached	600,000
Sulphite, Unbleached	545,000
Sulphate—Total	930,000
Soda	307,000
Screenings and Semi-Chemical	118,000

*A. P. & P. A. Estimate.

ESTIMATED U. S. PAPER PRODUCTION—1932

(Tons: 2,000 lbs.)

Grades—	
Total—All Grades	**8,000,000**
Newsprint	1,007,000
Book	1,000,000
Boards	3,300,000
Wrapping and Bag	1,175,000
Fine	414,000
Cover	14,000
Tissue	360,000
Building	347,000
All Other	383,000

Source: A. P. & P. A.

ESTIMATED U. S. PAPER CONSUMPTION—1932

(Tons: 2,000 lbs.)

Grades—	
Total—All Grades	**9,733,764**
Newsprint	2,789,683
Book	991,752
Boards	3,269,503
Wrapping and Bag	1,164,089
Fine	408,408
Cover	13,458
Tissue	355,848
Building	343,501
All Other	397,522

Source: A. P. & P. A.

DISTRIBUTION OF PULP CONSUMPTION IN U. S. BY PAPER GRADES

Paper Grades	Wood Pulp Per Cent	Other Pulps Per Cent	Total All Kinds of Pulp Per Cent
All Paper	100	100	100
Newsprint	24	—	14
Book	17	8	13
Writing	7	4	6
Wrapping	25	1	15
Boards	14	75	39
All Other	13	12	13

Source: A. P. & P. A.

ESTIMATED U. S. PER CAPITA CONSUMPTION 1932

(In Pounds)

Grades:	
Total, All Grades	**155.96**
Newsprint	44.70
Book	15.89
Boards	52.39
Wrapping and Bag	18.65
Fine	6.54
Cover	0.22
Tissue	5.70
Building	5.50
All Other	6.37

Source: A. P. & P. A.

UNITED STATES

Annual Per Capita Consumption of Paper—1919-1932

(In Pounds)

	Cultural Papers			Mechanical Papers		
Year	News	Uncoated Book	Writing	Paper Board	Wrapping and Bag	Total all Grades
1919	35	16	6.2	35	18.3	122
1920	41	19	7.1	42	21.5	144
1921	37	13	4.3	32	15.2	113
1922	45	18	6.3	43	18.7	146
1923	50	19	6.7	50	21.7	164
1924	50	19	7.0	50	21.9	165
1925	51	20	8.2	57	22.4	181
1926	60	20	8.5	62	24.1	198
1927	58	22	8.5	63	25.6	200
1928	59	23	9.0	67	26.7	208
1929	62	24	9.8	73	26.1	221
1930	58	22	9.2	66	25.4	201
1931	52	19	7.3	62	23.0	181
1932	45	16	6.5	52	19.0	156

A. P. & P. A. Estimates.

UNITED STATES
Wood Pulp Imports—Grade Totals—1899-1932
(In Tons of 2,000 Lbs.)

Year	Total	Groundw'd	Total Sulphite	Total Sulphate
1932	(a) 1,329,446	168,272	834,735	324,870
1931	1,596,374	210,656	963,195	[7]422,523
1930	1,832,877	299,232	1,106,487	[4]427,158
1929	1,887,505	273,461	1,159,974	[5]455,070
1928	1,762,325	249,199	1,062,243	[6]450,883
1927	1,675,718	245,599	1,035,985	394,134
1926	1,731,413	303,759	1,034,590	393,064
1925	1,483,614	331,092	790,211	362,311
1924	1,522,715	245,920	934,403	342,392
1923	1,228,982	267,194	712,533	249,255
1922	[1]1,258,961	215,811	712,088	330,337
1921	697,100	190,744	328,270	178,086
1920	906,297	233,148	473,175	199,974
1919	636,016	202,253	282,707	151,056
1918	578,209	185,478	270,211	122,520
1917	677,841	279,073	289,210	109,558
1916	683,765	262,517	———	———
1915	568,379	174,056	———	———
1914	675,564	217,256	———	———
1913	541,455	167,889	———	———
1912	539,790	185,443	———	———
1911	562,424	262,681	———	———
1910	506,776	224,184	———	———
1909	370,023	145,362	———	———
1908	[2]250,485	[3] 71,217	———	———
1907	296,778	———	———	———
1906	199,702	———	———	———
1905	170,867	———	———	———
1904	179,324	———	———	———
1899	57,335	———	———	———

(a) Includes 1,569 tons other pulp.

[1] Includes 725 tons of soda September to December only.

[2] Includes 100,535 tons of wood pulp, grade unclassified, imported Jan. 1 to June 30.

[3] July 1 to Dec. 31.

[4]Includes 4,309 tons of soda pulp and 516 tons of "other pulp."

[5]Includes 5,617 tons of soda pulp and 1,159 tons of "other pulp."

[6]Includes 7,535 tons of "other pulp," which includes also soda pulp.

[7]Includes 3,421 tons of soda pulp.

Source: U. S. Department of Commerce.

UNITED STATES
Total Domestic Woodpulp Production, by Grades, From 1899 to 1932
In Tons of 2,000 Lbs.

Year	Total	Groundwood	Sulphite	Soda	Sulphate
1932	[9]3,660,000	1,160,000	1,145,000	307,000	930,000
1931	4,409,344§	1,449,240	1,416,671	460,682	1,034,291
1930	4,630,308‡	1,560,221	1,567,063	504,443	949,513
1929	4,862,885†	1,637,653	1,668,707	561,210	910,888
1928	[1]4,510,800	1,615,689	1,595,951	488,641	780,552
1927	[2]4,313,403	1,618,638	1,588,132	487,478	607,172
1926	[3]4,394,766	1,774,192	1,599,776	496,920	523,878
1925	[4]3,962,217	1,629,689	1,447,191	472,647	412,690
1924	[5]3,723,266	1,643,283	1,336,551	440,697	302,735
1923	[6]3,788,672	1,580,553	1,448,690	445,162	314,267
1922	[5]3,521,644	1,483,787	1,374,319	419,857	243,681
1921	[8]2,875,601	1,267,382	1,166,926	300,533	140,760
1920	3,821,704	1,583,914	1,585,834	463,305	188,651
1919	[7]3,517,952	1,518,829	1,419,829	411,693	120,378
1918	3,313,861	1,364,504	1,456,633	350,362	142,362
1917	3,509,939	1,535,953	1,451,757	437,430	84,799
1916	3,435,001	1,508,139	1,466,402	387,021	73,439
1914	[8]2,893,150	1,293,661	1,151,327	347,928	52,641
1911	2,686,134	*	*	*	*
1910	2,533,976	*	*	*	*
1909	2,495,523	1,179,266	1,017,631	298,626	———
1908	2,118,947	*	*	*	*
1907	2,547,879	*	*	*	*
1904	1,921,768	968,976	736,976	196,770	———
1899	1,179,525	586,374	416,037	177,114	———

1932 production estimated on basis of preliminary reports.

§Includes 48,460 tons of screenings as follows: mechanical, 10,115; chemical, 38,345.

‡Includes 49,068 tons of screenings, as follows: mechanical, 6,611; chemical, 42,457.

*Not reported separately.

†Includes 64,427 tons of screenings, as follows: mechanical, 11,459; chemical, 52,968.

[1]Includes data for screenings, as follows: Mechanical, 4,701 tons; sulphite, 37,093; sulphate, 6,327.

[2]Includes data for screenings, as follows: Mechanical, 8,229 tons; sulphite, 35,433; sulphate, 3,919.

[3]Includes data for screenings as follows: Mechanical, 9,944 tons; sulphite, 41,601; sulphate, 3,918.

[4]Includes data for screenings as follows: Mechanical, 17,670 tons; sulphite, 44,105; sulphate, 2,922.

[5]Includes data for some screenings.

[6]Includes data for screenings as follows: Mechanical, 12,759 tons; sulphite, 37,463; sulphate, 1,784.

[7]Includes data for screenings as follows: Mechanical, 12,220 tons; chemical, not shown by process, 35,003.

[8]Includes data for screenings as follows: Mechanical, 11,769 tons; chemical, not shown by process, 35,824.

[9]Includes 118,000 tons screenings and semi-chemical.

Source: U. S. Department of Commerce.

UNITED STATES
Paper and Woodpulp Production and Consumption
Consumption of Domestic and Imported Pulpwood and Total Pulpwood Requirements
Specified Years, 1899-1932

Year—	PAPER Production (tons)	PAPER Consumption (tons)	WOODPULP Production (tons)	WOODPULP Consumption (tons)	CONSUMPTION OF PULPWOOD Domestic (cords)	Imported (cords)	Total (cords)	Total Pulpwood Requirements*
1899	2,167,593	2,158,000	1,179,525	1,216,254	1,617,093	369,217	1,986,310	1,949,712
1904	3,106,696	3,049,824	1,921,768	2,091,006	2,477,099	573,618	3,050,717	3,259,289
1909	4,216,708	4,224,000	2,495,523	2,856,593	3,207,653	793,954	4,001,607	4,419,749
1914	5,270,047	5,496,164	2,893,150	3,556,377	3,641,063	829,700	4,470,763	5,885,712
1917	5,919,647	6,255,725	3,509,939	4,148,600	4,706,327	773,748	5,480,075	6,782,700
1918	6,051,523	6,387,066	3,313,861	3,869,746	4,506,276	744,518	5,250,794	6,366,350
1919	6,190,361	6,479,490	3,517,952	4,113,911	4,445,817	1,032,015	5,477,832	6,806,491
1920	7,334,614	7,846,827	3,821,704	4,696,035	5,014,513	1,099,559	6,114,072	8,299,757
1921	5,356,317	6,053,915	2,875,601	3,544,218	3,740,406	816,773	4,557,179	6,649,388
1922	7,017,800	8,007,088	3,521,644	4,756,105	4,498,808	1,050,034	5,548,842	9,148,226
1923	8,029,482	9,339,573	3,788,672	5,149,695	4,636,789	1,236,081	5,872,870	9,924,161
1924	———	———	3,723,266	5,216,265	4,720,191	1,047,891	5,768,082	———
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821	10,752,765
1926	———	———	4,394,766	6,096,279	5,489,517	1,276,490	6,766,007	12,129,041
1927	10,002,070	11,915,233	4,313,403	5,960,865	5,526,889	1,224,046	6,750,935	12,196,909
1928	10,403,338	12,447,841	4,510,800	6,239,641	5,750,689	1,409,411	7,160,100	12,939,145
1929	11,140,235	13,347,925	4,862,885	6,704,341	6,411,566	1,233,445	7,645,011	13,806,101
1930	10,169,140	12,314,819	4,630,308	6,463,185	6,089,852	1,105,672	7,195,524	13,103,552
1931	9,381,850	11,403,850	4,409,344	6,005,718	5,896,446	826,320	6,722,766	11,910,000
1932‡	8,000,000	9,733,764	3,660,000	4,989,446	5,185,812	648,188§	5,834,000	10,344,100

Source: Bureau of the Census, Federal Trade Commission, United States Forest Service and A. P. & P. A.
Cords: 128 cubic feet.

*Pulpwood requirement is a computed figure which represents the pulpwood required to manufacture the total paper consumption of a year.

§Not strictly comparable with other data under same head. Refers to wood actually imported during the year, whereas other figures refer to imported wood actually consumed during year.

‡Estimated.

CENSUS OF FOREST PRODUCTS, 1932

Pulpwood Consumption and Wood Pulp Production, for Identical Mills, 1932 and 1931(a)

According to a preliminary tabulation of data collected at the annual Census of Forest Products taken in 1933, the total quantity of pulpwood consumed by 169 pulp mills in 1932 was 5,233,085 cords, a decrease of 13.3 per cent as compared with 6,033,312 cords consumed by the same mills in 1931. The production of wood pulp by these mills in 1932 amounted to 3,487,493 tons, a decrease of 13.4 per cent as compared with 4,027,053 tons in 1931. These 169 mills accounted for 89.7 per cent of the total consumption of pulpwood and produced 91.3 per cent of the total output of wood pulp in the United States in 1931. Assuming their proportionate consumption and production to have been approximately the same in 1932 as in 1931, an aggregate consumption of about 5,834,000 cords of pulpwood and an aggregate production of about 3,820,000 tons of wood pulp during that year are indicated. The corresponding totals for 1931 were 6,722,766 cords of pulpwood and 4,409,344 tons of wood pulp, respectively.

The following statement compares the consumption of pulpwood and the production of wood pulp in 1932 and 1931 by the 169 mills in question. In this statement, which covers about 83 per cent of the total number of active mills, 25 States are represented. As soon as returns are received for the remaining mills, a report giving complete figures will be issued.

Pulpwood Consumed and Wood Pulp Produced by 169 Identical Mills: 1932 and 1931

	1932	1931	Pct. of Decrease
Cords of pulpwood consumed	5,233,085	6,033,312	−13.3
Tons of wood pulp produced	3,487,493	4,027,053	−13.4

(a) Compiled by the Bureau of the Census, Department of Commerce, in cooperation with the Forest Service, Department of Agriculture.

WOOD-PULP PRODUCTION, BY STATES—1931

(Revised)

Source: Department of Commerce.

State—	Wood pulp produced (tons, 2,000 lbs.)
United States	4,409,344
Louisiana	260,765
Maine	889,416
Massachusetts	23,785
Michigan	150,111
Minnesota	148,369
New York	466,510
Oregon	237,532
Pennsylvania	160,023
Vermont	25,601
Virginia	223,417
Washington	580,016
Wisconsin	586,271
Other States[1]	657,528

[1]Combined to avoid disclosing, exactly or approximately, the output of individual establishments.

UNITED STATES

Wood Pulp Imports — By Grades and Countries of Origin — 1932
(Tons of 2,000 lbs.)

Grade—	COUNTRY OF ORIGIN: Canada	Finland	Germany	Norway	Sweden	Others	Totals by Grades
Mechanical Wood Pulp	133,960	16,600	.....	7,664	9,865	183	168,272
Sulphite—Total	206,924	107,287	80,515	78,373	317,629	44,007	834,735
Unbleached	56,335	95,579	42,330	31,402	270,894	19,667	516,207
Bleached	150,589	11,708	38,185	46,971	46,735	24,340	318,528
Sulphate—Total	37,283	45,278	482	13,285	227,226	1,316	324,870
Unbleached	17,411	43,756	482	12,961	225,578	1,316	301,504
Bleached	19,872	1,522	.....	324	1,648	.....	23,366
All Other Pulp	1,569	.....	.....	.....	.....	.....	1,569
Total (By Countries)	**379,736**	**169,165**	**80,997**	**99,322**	**554,720**	**45,506**	**1,329,446**

Source—Import Statistics, U. S. Department of Commerce. Preliminary report, subject to minor revision.

UNITED STATES

Wood Pulp Imports—By Grades and Countries of Origin—1931
(Tons of 2,000 lbs.)

Grade—	COUNTRY OF ORIGIN: Canada	Finland	Germany	Norway	Sweden	Others	Totals by Grades
Mechanical Wood Pulp	181,037	12,438	153	6,765	10,275	.....	210,668
Sulphite—Total	306,479	119,155	77,691	31,590	391,715	27,746	954,376
Unbleached	99,237	109,163	24,877	11,418	336,765	18,872	600,332
Bleached	207,242	9,992	52,814	20,172	54,950	8,874	354,044
Sulphate—Total	59,021	62,373	1,057	4,911	290,346	5,868	423,576
Unbleached	36,081	60,110	897	4,883	282,495	5,868	390,334
Bleached	22,940	2,263	160	28	7,851	.....	33,242
All Other Pulp	3,423	.....	.....	.....	.....	.....	3,423
Total (By Countries)	**549,960**	**193,966**	**78,901**	**43,266**	**692,336**	**33,614**	**1,592,040**

Source—Import Statistics, U. S. Department of Commerce.

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HOOKER CHEMICALS

PULPWOOD CONSUMPTION—QUANTITY, BY STATES—1931

Source: Department of Commerce

This table presents statistics for all States for which separate figures can be published without disclosing, exactly or approximately, the data reported by individual establishments. Certain of the "Other States", however, are more imporant in the industry than some of the States shown separately.

State—	Number of mills reporting	Total quantity consumed (cords)
United States	197	[1]6,722,766
Louisiana	6	431,425
Maine	27	1,112,368
Massachusetts	3	33,438
Michigan	10	251,197
Minnesota	6	197,587
New Hampshire	6	150,568
New York	47	538,370
Oregon	7	319,876
Pennsylvania	9	292,615
Vermont	3	24,633
Virginia	7	368,030
Washington	17	1,025,878
Wisconsin	28	956,659
Other States[2]	21	[1]975,122

[1]Includes data for a small quantity of spent licorice root of no market value.

[2]Alabama, 2 establishments; Arkansas, 1; Delaware, 1; Florida, 1; Maryland, 2; Mississippi, 2; New Jersey, 1; North Carolina, 3; Ohio, 1; South Carolina, 1; Tennessee, 4; West Virginia, 2.

†PULPWOOD IMPORTS

(Unit: 1 Cord—128 Cu. Ft.)

	Rough	Peeled	Rossed	Total
1932	114,366	531,158	2,664	648,188
1931	186,613	817,926	17,128	1,021,667
1930	331,158	1,234,678	16,365	1,582,201

†Preliminary report. Source: Department of Commerce, Bureau of Foreign and Domestic Commerce.

UNITED STATES
Exports of Paper—By Principal Grades
1929-1930-1931-1932*

	(Tons: 2,000 lbs.) 1932	1932	1931	1930	1929
Kind—	Value	Tons	Tons	Tons	Tons
Newsprint	$ 447,896	8,464	9,653	10,204	18,696
Book Paper, uncoated	787,094	7,482	9,512	15,915	18,909
Cover Paper	130,974	542	856	1,096	1,027
Wrapping Paper	1,317,011	9,630	14,307	22,124	21,942
Tissue nd Crepe	554,128	1,838	1,489	2,381	2,399
Toilet Paper	542,436	3,027	3,518	3,710	3,516
Paper Towels and Napkins	202,218	1,065	1,759	1,956	1,809
Boxboard	660,469	18,752	26,517	30,185	26,730
Sheathing and Building	187,325	3,499	7,513	9,399	11,248
Papeteries	44,503	96	136	325	428
Other Writing Paper	859,236	6,265	7,332	10,532	13,995
Boxes and Cartons	628,046	5,590	7,241	11,357	14,060
Envelopes	148,536	532	773	1,115	1,211
Cash Register and Adding Machine	354,666	2,449	4,399	2,290	2,754
Totals	$6,864,528	69,225	95,005	122,589	138,724

*Preliminary report. Source: Department of Commerce, Bureau of Foreign and Domestic Commerce.

UNITED STATES IMPORTS OF BLEACHED SULPHITE FROM 1920 TO 1932

By Countries of Origin

(Long Tons of 2,240 Pounds)

Countries—	Canada	Sweden	Germany	Norway	Finland	All Others	Total
1920	86,055	6,788	200	13,435	5,329	2,663	114,470
1921	59,198	5,770	1,335	8,180	7,591	2,931	85,005
1922	122,347	39,340	3,152	39,153	5,393	3,708	213,093
1923	132,138	41,958	12,655	46,849	12,063	4,917	250,580
1924	135,943	64,221	17,054	35,279	6,960	12,912	272,369
1925	137,598	71,577	16,662	48,111	4,130	8,898	286,976
1926	152,764	58,623	25,944	45,416	2,739	9,332	294,818
1927	171,280	46,369	25,341	49,928	4,595	13,617	311,138
1928	176,807	36,237	39,592	40,212	1,500	13,578	307,926
1929	187,469	47,199	45,471	39,312	7,306	7,478	334,235
1930	181,195	43,916	46,101	36,758	7,335	7,358	322,693
1931	185,037	49,063	47,155	18,011	8,922	7,923	316,111
1932	150,589	46,735	38,185	46,971	11,708	24,340	318,528

Source—Paper Division, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

UNITED STATES
Imports of Unbleached Sulphite—1920 to 1932
(Long Tons—2,240 Pounds)

	Sweden	Canada	Finland	Germany	Norway	All Others	Total
1920	73,957	207,667	13,502	7,193	3,627	2,062	308,008
1921	73,070	88,112	24,696	14,308	3,137	4,770	208,093
1922	193,218	146,690	27,642	16,968	29,134	4,048	422,700
1923	159,065	167,725	58,602	42,851	21,222	12,388	461,853
1924	226,978	192,308	48,007	54,944	26,079	13,554	561,920
1925	193,034	253,670	48,996	42,362	20,639	20,083	579,284
1926	244,925	226,153	61,804	54,305	18,613	23,123	628,923
1927	299,875	179,630	70,106	25,487	17,747	21,011	613,856
1928	297,130	179,751	92,778	23,933	23,456	23,607	640,660
1929	350,152	190,565	109,121	16,822	18,325	16,471	701,456
1930	331,968	180,417	99,881	19,049	20,210	14,152	665,075
1931	300,682	88,604	97,467	22,212	10,195	16,850	536,010
1932	270,894	56,335	95,579	42,330	31,402	19,667	516,207

Source: Department of Commerce, Bureau of Foreign and Domestic Commerce.

UNITED STATES

Pulpwood Consumption and Wood-Pulp Production, by States—1926-1931

Quantity and Cost of Wood Consumed

Quantity of Pulp Produced

Source: Census of Manufactures.

(Statistics are given for all States for which separate figures can be published without disclosing, exactly or approximately, the data reported by individul estblishments. Certin of the "Other States", however, are more important in the industry than some of the States shown separately).

States—	Year	Wood Consumed — Quantity (cords)	Wood Consumed — Cost f.o.b. Mill — Total	Wood Consumed — Cost f.o.b. Mill — Average per cord	Wood Pulp produced (tons of 2,000 lbs.)
United States	1931	[1]6,722,766	$73,524,059	$10.94	[1]4,409,344
	1930	*7,195,524	88,683,502	12.32	4,630,308
	1929	7,645,011	100,054,139	13.09	4,862,885
	1928	*7,160,100	97,024,190	13.55	4,510,800
	1927	6,750,935	95,452,365	14.29	4,313,403
	1926	6,766,007	101,229,402	14.96	4,394,766
Individual States:					
Maine	1931	1,122,368	17,326,636	15.58	889,416
	1930	1,203,377	19,833,906	16.48	905,088
	1929	1,311,577	22,281,806	16.99	981,433
	1928	1,309,988	22,602,624	17.25	970,690
	1927	1,273,268	21,850,760	17.16	942,162
	1926	1,298,357	22,619,373	17.42	945,790
Wisconsin	1931	956,659	11,319,105	11.83	586,271
	1930	1,168,789	14,710,447	12.59	701,011
	1929	1,233,962	15,632,746	12.67	733,617
	1928	1,225,630	15,869,381	12.95	720,781
	1927	1,199,615	15,174,013	12.65	690,921
	1926	1,224,443	15,711,665	12.83	712,565
Washington	1931	1,025,878	7,252,770	7.07	580,016
	1930	1,000,001	6,883,484	6.88	566,137
	1929	956,132	6,527,585	6.83	523,948
	1928	651,657	4,781,566	7.34	349,107
	1927	445,664	3,588,506	8.05	268,349
	1926	305,787	2,775,122	9.08	199,164
New York	1931	583,370	10,388,934	17.81	466,510
	1930	763,451	14,200,286	18.60	596,219
	1929	826,312	15,987,105	19.35	662,988
	1928	802,115	14,962,631	18.65	633,182
	1927	872,780	16,882,733	19.34	710,227
	1926	990,701	19,350,874	19.53	822,131
Louisiana	1931	431,425	2,047,236	4.75	260,765
	1930	422,710	2,385,417	5.64	243,915
	1929	459,553	2,671,881	5.81	246,590
	1928	413,602	2,429,247	5.87	226,708
	1927	349,272	2,056,671	5.89	179,878
	1926	258,439	1,674,651	6.48	137,571
Pennsylvania	1931	292,615	4,662,606	15.93	160,023
	1930	352,775	5,703,253	16.17	188,943
	1929	397,680	6,930,456	17.43	213,083
	1928	405,276	7,016,656	17.31	218,598
	1927	398,021	7,171,606	18.02	216,587
	1926	425,684	7,171,764	16.85	233,258
Oregon	1931	319,876	2,584,712	8.08	237,532
	1930	351,053	2,963,962	8.44	248,592
	1929	340,745	3,157,499	9.27	256,546
	1928	308,264	3,094,255	10.04	213,407
New Hampshire	†1930	242,756	4,527,619	18.65	138,332
	1929	376,014	7,375,455	19.61	212,774
	1928	351,349	6,843,713	19.48	198,587
	1927	358,376	6,958,956	19.42	200,324
	1926	431,138	8,969,404	20.80	248,600
Virginia	1931	368,030	3,049,937	8.29	223,417
	1930	378,421	3,812,361	10.07	216,365
	1929	375,179	4,143,285	11.04	206,050
	1928	342,813	3,942,477	11.50	189,925
	1927	316,032	3,775,393	11.95	170,630
	1926	317,058	4,032,829	12.72	163,506
Michigan	1931	251,197	2,937,046	11.69	150,111
	1930	279,986	3,725,080	13.40	193,418
	1929	313,477	4,422,317	14.11	178,015
	1928	331,697	4,634,972	13.97	196,203
	1927	351,688	4,712,584	13.40	193,539
	1926	331,570	5,136,117	15.49	200,604
Minnesota	1931	197,587	2,118,058	10.72	148,369
	1930	230,471	2,688,294	11.66	182,456
	1929	266,320	2,780,312	10.44	189,664
	1928	282,691	3,365,081	11.90	194,399
	1927	281,156	3,397,201	12.08	191,220
	1926	288,390	3,269,903	11.34	190,454
Vermont	1931	24,633	326,546	13.26	25,601
	1930	24,224	362,784	15.02	25,047
	1929	25,486	447,168	17.55	26,307
	1928	20,081	330,702	16.47	19,831
	1927	31,795	549,741	17.29	32,562
	1926	48,554	937,464	19.31	46,376
Massachusetts	1931	33,438	535,918	16.03	23,785
Other States[2]	1931	[1]1,125,690	8,974,555	7.97	[1]657,528
	1930	*734,110	6,116,411	8.33	395,407
	1929	717,474	6,909,782	9.63	402,378
	1928	*663,612	6,176,561	9.31	347,012

*Includes data for small quantity of spent licorice root with no market value.

[1]Includes data for a small quantity of spent licorice root of no market value.

[2]Alabama, 2 establishments; Arkansas, 1; Delaware, 1; Florida, 1; Maryland, 2; Mississippi, 2; New Hmpshire, 6; New Jersey, 1; North Crolina, 3; Ohio, 1; South Carolina, 1; Tennessee, 4; West Virginia, 2.

†1931 figures included in other states.

CENSUS OF MANUFACTURES

Pulp and Paper Industries
Principal Statistics for Pacific Coast States: 1931

General Statistics for the PAPER industry:	California	Oregon	Washington
Wage earners (average for the year)[1]	1,556	1,229	1,901
Wages[2]	$ 2,097,405	$1,410,451	$2,586,460
Cost of materials, fuel, and purchased electric energy[2]	$ 6,102,593	$6,377,862	$10,081,909
Value of products, total[2]	$11,692,087	$13,623,563	$26,531,779
Paper	$ 9,724,409	$13,492,637	$25,575,133
Other products	$ 1,967,678	$130,926	$956,646
Value added by manufacture[3]	$ 5,589,494	$7,245,701	$16,449,870
Quantity produced (tons of 2,000 lbs.)	192,273	200,065	374,765
General statistics for the PULP industry:			
Wage earners (average for the year)[1]	----------	704	2,155
Wages[2]	----------	$919,209	$2,877,343
Cost of materials, fuel, and purchased electric energy[2]	----------	$4,122,759	$11,448,733
Value of products, total[2]	----------	$5,739,859	$17,756,615
Pulp	----------	$5,739,859	$17,688,046
Other products	----------	----------	$68,569
Value added by manufacture[3]	----------	$1,617,100	$6,307,882
Quantity produced (tons of 2,000 lbs.)	----------	237,532	580,016

[1]Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would hve been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstte somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners.

[2]Mnufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, deprecition, taxes, insurance, and advertising.

[3]Value of products less cost of materials, fuel, and purchased electric energy.

Pulps Used in Different Papers

(By Percentages)

Kind of Paper—	Total	Mechanical Wood Pulp	Sulphite Pulp	Sulphate	Soda	Other Pulps
Newsprint	100	80	20	----	----	----
Book	75	10	35	----	30	25
Writing	73	----	66	2	5	27
Wrapping	97	11	29	57	----	3
Boards	22	4	8	10	----	78
All Other	60	21	28	5	6	40

In conversion 7 per cent is added for pulp losses in paper manufacture. The percentages given above are average only, as the proportions vary somewhat in different mills.

WORLD PRODUCTION OF NEWS PRINT PAPER 1932, 1931

World production of news print paper appears to have totaled 6,275,000 short tons in 1932 compared with 6,622,000 tons in 1931. The detailed figures, in the compilation of which much assistance was received from the Department of Commerce in Washington, are as follows:

Country	1932	1931
	2,000-lb. Tons	
Canada	1,915,000	2,221,000
United States	1,007,000	1,157,000
Great Britain	790,000	719,000
Germany	450,000	540,000
France	275,000	243,000
Newfoundland	272,000	295,000
Japan	272,000	258,000
Sweden	257,000	265,000
Finland	254,000	241,000
Norway	200,000	104,000
Russia	125,000(?)	100,000(?)
Netherlands	85,000	79,000
Italy	74,000	69,000
Spain	65,000	62,000
Austria	53,000	62,000
Switzerland	45,000	49,000
Belgium	40,000	44,000
Czechoslovakia	40,000	42,000
Poland	23,000	27,000
Mexico	13,000	15,000
Denmark	9,000	10,000
Estonia	6,000	17,000
Latvia	5,000	3,000
Total	6,275,000	6,622,000

North America produced 50 per cent of the world's news print last year and 54 per cent in 1931. Stated otherwise, there was a decrease of nearly 480,000 tons in the North American output, but an increase of 130,000 tons overseas. The important increases were in Great Britain, France and Norway, the two former due to new machines and the latter to the resumption of full time after the prolonged strike of 1931. German output slumped 90,000 tons while changes in output in other countries were relatively slight.

—R. S. Kellogg
Newsprint Service Bureau.

NEWS PRINT IN THE UNITED STATES, 1913-1932

(Tons)

Year	Production	Imports	Exports	Balance at Home
1913	1,305,000	220,000	43,000	1,482,000
1914	1,313,000	315,000	61,000	1,567,000
1915	1,239,000	368,000	55,000	1,552,000
1916	1,315,000	468,000	76,000	1,707,000
1917	1,359,000	559,000	94 000	1,824,000
1918	1,260,000	596,000	97,000	1,759,000
1919	1,375,000	628,000	111,000	1,892,000
1920	1,512,000	730,000	49,000	2,193,000
1921	1,225,000	792,000	17,000	2,000,000
1922	1,448,000	1,029,000	26,000	2,451,000
1923	1,485,000	1,309,000	16,000	2,778,000
1924	1,481,000	1,357,000	17,000	2,821,000
1925	1,530,000	1,448,000	23,000	2,955,000
1926	1,684,000	1,851,000	19,000	3,516,000
1927	1,486,000	1,984,000	12,000	3,458,000
1928	1,418,000	2,157,000	11,000	3,564,000
1929	1,392,000	2,421,000	19,000	3,794,000
1930	1,282,000	2,280,000	10,000	3,552,000
1931	1,157,000	2,067,000	10,000	3,214,000
1932	1,007,000	1,791,000	8,000	2,790,000

IMPORTS OF EUROPEAN NEWS PRINT INTO THE U. S.

January 1, 1920—December 31, 1932 (Tons)

	Sweden	Germany	Finland	Norway	Other	Total
1920	18,875	21,066	3,244	5,916	1,337	50,438
1921	48,932	38,938	22,661	20,193	4,613	135,337
1922	51,812	32,838	26,205	17,292	4,741	132,888
1923	64,570	52,290	41,782	33,829	7,798	200,269
1924	60,827	38,840	35,639	17,259	3,238	155,803
1925	65,518	25,862	21,683	17,030	2,421	132,514
1926	46,020	12,884	34,292	6,176	554	99,926
1927	66,920	7,096	29,330	16,796	1,919	122,061
1928	55,718	9,170	40,237	10,864	418	116,407
1929	50,717	9,741	32,293	3,498	124	96,373
1930	69,268	13,788	41,913	9,326	—	134,295
1931	66,688	21,910	47,992	14,444	35	151,069
1932	60,079	13,614	48,795	24,653	—	147,141
Total 13 years	725,944	298,037	426,066	197,276	27,198	1,674,521
Percent (Average)	43.4	17.8	25.5	11.2	1.6	100.0

RAYON IN 1932

Country	Production (Lbs.)	Consumption (Lbs.)
United States	131,000,000	149,500,000
Great Britain	72,530,000	63,400,000
Italy	71,875,000	25,700,000
Japan	66,320,000	56,600,000
Germany	54,640,000	67,000,000
France	39,670,000	22,700,000
World*	498,370,000	502,730,000

*Includes all other counties.
Source: Commerce Reports of U. S. Dept. of Commerce.

UNITED STATES

Imports of Bleached and Unbleached Sulphate—1920 to 1932

By Countries of Origin

(Long Tons of 2,240 Pounds)

Countries:	Sweden	Canada	Finland	Norway	All Others	Total
1920	25,012	114,175	7,762	3,363	1,236	178,548
1921	57,702	89,729	5,799	522	2,733	159,006
1922	122,545	137,307	23,631	8,850	2,611	294,944
1923	84,739	131,304	20,089	10,258	2,728	249,118
1924	144,148	125,256	17,749	13,080	5,474	305,707
1925	159,282	127,567	21,170	10,568	4,635	323,222
1926	169,810	140,625	25,006	11,798	3,711	350,950
1927	180,897	138,660	19,602	10,690	2,102	351,951
1928	201,757	141,779	32,139	15,761	4,410	395,846
1929	227,760	116,290	31,907	17,079	6,333	399,639
1930	247,361	76,334	35,427	13,072	3,677	338,714
1931	259,238	52,700	55,692	4,385	6,183	378,198
1932	227,226	37,283	45,278	13,285	1,798	324,870

Source: Department of Commerce, Bureau of Foreign and Domestic Commerce.

NEWS PRINT PRODUCTION IN NORTH AMERICA—1923-1932

Source—News Print Service Bureau

	Production Tons	Shipments Tons	Mill Stocks
CANADIAN MILLS			
1932—Twelve Months	1,907,566	1,915,572	42,337
1931— " "	2,221,454	2,202,163	54,204
1930— " "	2,504,147	2,494,694	36,777
1929— " "	2,728,827	2,722,381	24,946
1928— " "	2,381,102	2,399,030	19,139
1927— " "	2,086,949	2,062,749	38,117
1926— " "	1,881,737	1,878,746	14,345
1925— " "	1,522,217	1,525,150	18,414
1924— " "	1,352,994	1,344,757	21,954
1923— " "	1,266,232	1,257,521	15,123
UNITED STATES MILLS			
1932—Twelve Months	1,006,569	1,007,914	21,783
1931— " "	1,157,436	1,157,827	32,709
1930— " "	1,282,372	1,268,065	32,061
1929— " "	1,392,276	1,409,239	19,023
1928— " "	1,417,572	1,399,425	34,469
1927— " "	1,485,495	1,474,521	20,877
1926— " "	1,684,218	1,684,790	12,030
1925— " "	1,530,318	1,534,345	16,238
1924— " "	1,481,425	1,480,819	23,757
1923— " "	1,485,000	1,477,332	23,669
UNITED STATES AND CANADIAN MILLS			
1932—Twelve Months	2,914,135	2,923,486	64,120
1931— " "	3,378,890	3,359,990	86,913
1930— " "	3,786,519	3,762,759	68,838
1929— " "	4,121,103	4,131,620	43,969
1928— " "	3,798,674	3,798,455	53,608
1927— " "	3,572,444	3,537,270	58,994
1926— " "	3,565,955	3,563,536	26,375
1925— " "	3,052,535	3,059,495	34,652
1924— " "	2,834,419	2,825,576	45,711
1923— " "	2,751,232	2,734,853	38,792

NORTH AMERICAN PRODUCTION

	Canada	United States	Newfoundland	Mexico	Total
1932—Twelve Months	1,907,566	1,006,569	271,804	12,683	3,198,622
1931— " "	2,221,454	1,157,436	294,983	15,195	3,689,068
1930— " "	2,504,147	1,282,372	287,259	14,286	4,088,064
1929— " "	2,728,827	1,392,276	255,501	18,680	4,395,284
1928— " "	2,381,102	1,417,572	230,745	16,981	4,046,400
1927— " "	2,086,949	1,485,495	202,852	14,137	3,789,433
1926— " "	1,881,737	1,684,218	186,471	13,412	3,765,838
1925— " "	1,522,217	1,530,318	96,588	12,681	3,161,804
1924— " "	1,352,994	1,481,425	64,648	11,500	2,910,567
1923— " "	1,266,232	1,485,000	63,906	12,000	2,827,138

TWO-STAGE CONTINUOUS BATCH BEATING

(Concluded from page 39)

treatment may be made to best suit particular mill conditions but these we shall not attempt to discuss in this paper.

United States and foreign patents have been allowed covering the methods and equipment used and these, with patents now pending and being applied for, fully cover the details of this type of stock treatment.

Advantages of Continuous Batch Treatment

The features of "Continuous Batch" beating that have been discussed herein point the way to an automatic beater room operation with many obvious advantages. Among these are the reduction in the size of the beater room to one-tenth or less of its present size; a power saving of fifty per cent as compared with tub beaters; closer and more quickly responsive control of all elements entering into the stock treatment and the ability to readily adjust the treatment to the characteristics of the stock and to the results that are wanted in the paper.

Such treatment in the beater room obviously permits close and rapidly responsive control of the sheet on the paper machine wire and gives safer running on the paper machine and, as a final result, produces a better quality and more uniform paper.

The excellent results obtained by the mills using this type of beating, since its first installation in 1930, have fully proven its advantages.

WORLD PRODUCTION OF NEWSPRINT PAPER—1927 TO 1932*

(Short tons of 2,000 lbs.)

Countries—	1927 Tons	1928 Tons	1929 Tons	1930 Tons	1931 Tons	1932 Tons
Canada	2,087,000	2,381,000	2,729,000	2,504,000	2,221,000	1,915,000
United States	1,486,000	1,405,000	1,392,000	1,282,000	1,157,000	1,007,000
Great Britain	615,000	646,000	637,000	608,000	719,000	780,000
Germany	565,000	600,000	623,000	590,000	540,000	450,000
Newfoundland	203,000	231,000	256,000	287,000	295,000	272,000
Sweden	239,000	234,000	275,000	240,000	265,000	257,000
Japan	246,000	267,000	286,000	285,000	258,000	272,000
France	121,000	136,000	210,000	240,000	243,000	275,000
Finland	200,000	214,000	217,000	223,000	241,000	254,000
Norway	192,000	198,000	189,000	202,000	104,000	200,000
Russia[1]	10,000	7,000	48,000	90,000	(?) 100,000	(?) 125,000
Netherlands	77,000	76,000	77,000	84,000	79,000	85,000
Italy	42,000	45,000	52,000	69,000	69,000	74,000
Austria	50,000	57,000	62,000	64,000	62,000	53,000
Spain	25,000	26,000	30,000	32,000	62,000	65,000
Switzerland	40,000	40,000	48,000	47,000	49,000	45,000
Belgium	50,000	50,000	57,000	50,000	44,000	40,000
Czechoslovakia	45,000	45,000	47,000	44,000	42,000	40,000
Poland	17,000	20,000	23,000	27,000	27,000	23,000
Estonia	21,000	20,000	27,000	29,000	17,000	6,000
Mexico	14,000	17,000	19,000	14,000	15,000	13,000
Denmark	16,000	16,000	11,000	10,000	10,000	9,000
Latvia	3,000	3,000	4,000	4,000	3,000	5,000
Total	**6,364,000**	**6,744,000**	**7,319,000**	**7,025,000**	**6,622,000**	**6,275,000**

[1]Russian figures admittedly incomplete.
*Compiled by The Newsprint Service Bureau from composite of reports direct to their office, information from foreign correspondents and data from the U. S. Department of Commerce.

UNITED STATES

Box Board—Production, Shipments, Etc.

Year and Month—1932	—Operation—(Inch hours)— Capacity	Operated	Per Cent of Capacity	—Production—(Short tons)— Capacity	Output	Per Cent of Capacity	New orders (Short tons)	Unfilled orders end month (Short tons)
January	11,210,700	6,365,919	56.8	316,950	182,306	57.5	189,131	43,862
February	11,210,700	6,529,311	58.2	316,950	186,756	58.9	188,734	42,589
March	12,107,556	7,332,487	60.6	342,306	206,802	60.4	196,403	35,313
April	11,659,128	6,068,393	52.0	329,628	177,899	54.0	176,884	32,607
May	11,210,700	5,941,610	53.0	316,950	170,383	53.6	166,395	31,391
June	11,659,128	5,945,983	51.0	329,628	171,093	51.9	166,129	29,802
July	11,210,700	5,656,957	50.5	316,950	164,352	51.9	161,777	23,192
August	12,107,556	6,234,398	51.5	342,306	173,805	50.8	182,701	35,864
September	11,210,700	6,886,528	61.4	316,950	180,421	56.9	205,783	53,331
October	11,659,128	7,180,562	61.6	329,628	201,777	61.2	199,119	48,536
November	11,210,700	6,511,791	58.1	316,950	179,094	56.5	163,128	33,575
December	11,659,128	5,325,690	45.7	329,628	157,357	47.7	152,807	33,490
Total (Year 1932)	**138,115,824**	**75,979,629**	**55.0**	**3,904,824**	**2,152,045**	**55.1**	**2,148,991**	
Total (Year 1931)	**137,218,968**	**91,894,961**	**67.0**	**3,879,836**	**2,556,851**	**65.9**	**2,527,024**	
Total (Year 1930)	**139,179,840**	**96,843,592**	**69.6**	**3,917,436**	**2,699,595**	**68.9**	**2,685,373**	

1932—	Shipments	Stocks of Box Board end of month	Consumption of Waste Paper Capacity (Short tons)	Consumed	Per Cent of Capacity	Stocks of Waste Paper, End of Mo. Total	At plants	In transit and unshipped purchases
January	187,118	80,189	293,975	177,610	60.4	198,959	168,422	30,537
February	190,007	76,938	293,975	173,395	59.0	197,741	163,522	34,219
March	203,679	80,061	317,493	191,637	60.4	203,071	164,596	38,475
April	179,590	78,370	305,734	167,372	54.7	197,732	171,104	26,628
May	167,611	81,154	305,734	163,746	53.6	196,907	168,915	27,992
June	167,728	84,501	305,734	164,808	53.9	179,808	153,663	26,145
July	169,776	79,922	293,975	170,656	58.1	189,893	160,118	29,775
August	171,486	81,805	317,493	163,909	51.6	175,240	151,343	23,897
September	188,103	74,237	293,975	196,910	67.0	201,422	174,756	2[illegible]
October	203,932	72,083	305,734	228,116	74.6	191,242	160,794	30,448
November	178,189	72,491	293,975	197,306	67.1	204,018	172,693	31,325
December	152,874	76,173	305,729	155,729	50.9	184,970	160,600	24,370
Total (Year 1932)	**2,160,093**		**3,633,531**	**2,151,194**	**59.2**			
Total (Year 1931)	**2,544,301**		**3,598,254**	**2,391,368**	**66.5**			
Total (Year 1930)	**2,692,498**		**3,789,427**	**2,572,445**	**67.9**			

Source: U. S. Department of Commerce. Based on reports submitted to the Bureau of the Census by 89 establishments operating 122 plants. Capacity data shown varies according to the normal number of working days each month.

CANADA

Value of Pulpwood Production

Year	Pulpwood Used	Pulpwood Exported	Total Production
1921	$ 38,283,262	$14,617,610	$ 52,900,872
1922	40,375,599	10,359,762	50,735,361
1923	43,594,592	13,525,004	57,119,596
1924	44,241,582	13,536,058	57,777,640
1925	48,012,602	14,168,935	62,181,537
1926	54,033,273	14,067,030	68,100,303
1927	54,582,190	15,702,705	70,284,895
1928	59,578,417	15,269,660	74,848,077
1929	63,101,138	13,314,738	76,415,876
1930	53,917,995	13,611,617	67,529,612
1931	42,098,327	9,874,916	51,973,243

Source: Canadian Department of Trade and Commerce, Dominion Bureau of Statistics, Forest Products Branch.

BRITISH COLUMBIA

Review of Pulp and Paper Production 1919-1932

	—PULP— Tons			—PAPER—	
	Sulphite	Sulphate	Groundwd	News Print	Other
1932	85,419	10,889	161,502	205,050	24,051
1931	124,521	11,744	170,432	217,562	17,709
1930	130,462	13,055	172,539	224,928	20,446
1929	112,925	15,647	151,066	201,009	19,492
1928	120,413	15,050	170,005	225,477	15,960
1927	119,005	13,700	163,548	214,010	13,745
1926	108,381	15,000	136,123	176,924	10,389
1925	92,514	16,856	121,363	148,201	9,261
1924	89,839	14,403	112,001	136,281	9,653
1923	99,878	9,932	107,266	142,928	7,709
1922	86,894	9,674	100,759	124,639	7,945
1921	68,502	6,519	89,725	110,176	6,934
1920	92,299	16,380	108,655	136,832	9,792
1919	80,347	9,473	99,769	123,607	7,202

	Total Production All Grades—Tons Pulp	Paper	Estimated value of production:
1932	257,810	229,101	$11,156,000
1931	306,697	235,271	13,508,000
1930	316,056	245,374	16,520,000
1929	279,638	220,501	14,400,000
1928	305,468	241,437	16,755,000
1927	296,253	227,755	18,505,000
1926	259,504	187,313	16,315,000
1925	230,733	157,462	14,466,000
1924	216,243	145,934	13,938,000
1923	217,076	150,637	15,018,000
1922	197,327	132,584	12,590,000
1921	164,746	117,110	13,500,000
1920	217,334	146,624	----------
1919	189,589	130,809	----------

Source—British Columbia, Department of Lands, Report of the Forest Branch.

BRITISH COLUMBIA

Principal Production Statistics 1931

	Quantity	Value
Pulpwood produced ..... cords	376,747	$2,995,241
Pulpwood consumed ..... cords	363,688	2,923,449
Wood pulp produced ..... tons	310,029	6,948,124
Wood pulp consumed ..... tons	256,802	4,747,444
Paper produced ..... tons	244,397	12,182,112

NEWS PRINT IN CANADA, 1913-1932

(Tons)

Year	Production	Exports	Balance at Home
1913	350,000	*	*
1914	415,000	*	*
1915	489,000	*	*
1916	608,000	*	*
1917	686,000	*	*
1918	735,000	*	*
1919	803,000	708,000	95,000
1920	876,000	762,000	114,000
1921	808,000	709,000	99,000
1922	1,082,000	960,000	122,000
1923	1,266,000	1,138,000	128,000
1924	1,353,000	1,219,000	134,000
1925	1,522,000	1,402,000	120,000
1926	1,882,000	1,732,000	150,000
1927	2,087,000	1,882,000	205,000
1928	2,381,000	2,207,000	174,000
1929	2,729,000	2,511,000	218,000
1930	2,504,000	2,331,000	173,000
1931	2,221,000	2,008,000	213,000
1932	1,915,000	1,782,000	133,000

*No data.

NEWSPRINT EXPORTS FROM CANADA

To:	Tons 1932	1931
United Kingdom	87,215	104,027
South America	53,274	56,333
South Africa	9,921	14,744
Australia	39,492	29,502
New Zealand	12,210	14,673
U. S. A.	1,520,294	1,753,414
All other	59,357	35,544
Total	1,781,763	2,008,237

BRITISH COLUMBIA

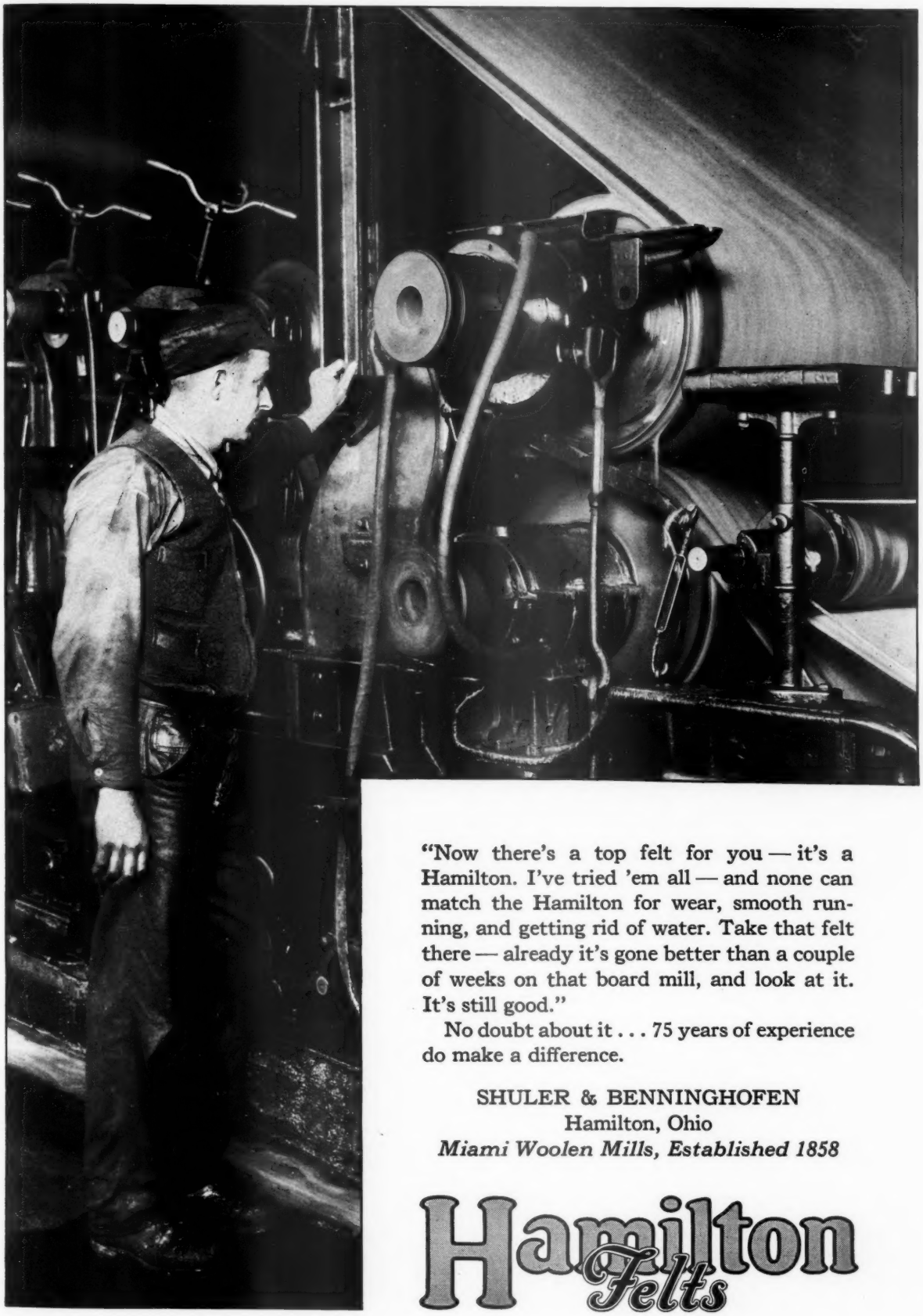
Pulp and Paper Exports

Loaded at Ocean Falls, Powell River, Swanson Bay, Port Alice, Woodfibre and Vancouver

(Compiled by Vancouver Merchants' Exchange)

Destination—	1925	1926	1927	1928	1929	1930	1931	1932
Australia	2,115	13,950	18,226	14,550	21,480	15,940	11,835	15,314
Argentine	------	------	------	34,045	------	609	------*	19,752
Central and South America	11,000	------	------	1,667	14,677	16,503	22,637	6,404
Canada (Eastern ports)	------	41,823	------	------	2,130	4,339	4,457	3,820
China	------	------	80	35	1,870	2,620	489	16,105
Japan	25,884	------	53,244	57,230	45,526	54,865	78,631	59,959
New Zealand	11,890	10,560	8,702	20,548	9,525	9,214	5,363	4,251
United Kingdom	------	------	------	------	1,728	621	9,047	486
United States	175,233	158,917	152,002	172,017	156,788	174,017	157,943	130,771
Other Countries	------	------	1,980	1,119	277	90	458	731
Total Short Tons	208,122	235,506	243,671	301,211	254,001	278,818	290,860	257,724†

*Argentine shipments in 1931 are included under Central and South America.
†Includes 131 tons of paper shipped from New Westminster, destination not available.



"Now there's a top felt for you — it's a Hamilton. I've tried 'em all — and none can match the Hamilton for wear, smooth running, and getting rid of water. Take that felt there — already it's gone better than a couple of weeks on that board mill, and look at it. It's still good."

No doubt about it . . . 75 years of experience do make a difference.

SHULER & BENNINGHOFEN
Hamilton, Ohio
Miami Woolen Mills, Established 1858

Hamilton Felts

BRITISH COLUMBIA
Wood Used in the Manufacture of Pulp
By Kinds and Processes—1931

Kind of Wood—	Quantity	Average Value per cord	Quantity Wood Used in Each Process — Mechanical	Sulphite	Sulphate or Kraft
	Cords	Dollars	Cords	Cords	Cords
Spruce & Balsam	142,017	$9.16	108,842	31,757	1,418
Hemlock	209,713	7.30	35,842	167,845	6,026
Poplar	28	7.46	28	.....	.....
Other Kinds*	11,930	7.71	.....	1,257	10,673
Total	**363,688**	**$8.04**	**144,712**	**200,859**	**18,117**
Totals, 1930	**373,397**	**$8.68**	**142,934**	**211,106**	**19,357**

Source: Canadian Department of Trade and Commerce, Dominion Bureau of Statistics, Forest Products Branch.

BRITISH COLUMBIA
Principal Statistics of the Pulp and Paper Industry
1930-1931

		1930	1931
Capital invested	$	53,405,998	52,256,905
Total number of employes	No.	2,959	2,553
Salaries and wages	$	4,945,001	4,005,088
Fuel and electricity used	$	974,298	877,189
Power employed	H.P.	104,442	132,766
Pulp-making materials	$	3,992,214	3,612,865
Pulp manufactured	$	7,939,798	6,948,124
Paper-making materials	$	5,364,886	5,019,500
Paper manufactured	$	14,134,251	12,182,112
Gross value of Production	$	17,785,550	14,892,646
Net value of Production	$	13,203,254	10,774,044

Source: Canadian Department of Trade and Commerce, Dominion Bureau of Statistics, Forest Products Branch.

Europe, etc.

WOOD PULP PRODUCTION IN NORWAY, SWEDEN AND FINLAND

(Metric Tons)

	Mechanical	Sulphite — Bleached	Sulphite — Unbleached	Sulphate
Norway				
1929	514,900	175,000	196,000	71,000
1930	514,500	160,000	127,000	2,200
1931	349,600	75,600	55,300	6,800(1)
1932	413,200	168,900	111,700	15,400(1)
Sweden				
1929	658,300	182,600	1,049,700	649,900
1930	578,300	182,100	1,048,900	622,700
1931	570,000	173,000	845,000	607,000
1932	.....	.....	.....	.....
Finland				
1929	347,500	63,500	408,800	113,600
1930	371,400	77,100	441,600	165,700
1931	371,800	70,600	417,400	173,800
1932	445,000	640,000		230,000(1)

Metric ton equals 2,205 pounds.
[1]Preliminary figures.
Source: U. S. Dept. of Commerce.

EXPORTS OF PAPER AND BOARDS FROM NORWAY

(Metric Tons)

Classes	1932	1931
Total, Paper and Boards	**299,280**	**183,868**
Kraft Wrapping Paper	25,972	15,493
Sulphite W. Paper	4,249	(.....
M. G. Cap Paper	9,266	(20,015
Tissue	7,184	(.....
Greaseproof	17,047	10,017
Brown, Groundwood Content	1,639	1,286
Other Wrapping	5,098	4,751
Newsprint	161,455	87,603
Thin Printings	13,060	(.....
Other Printings, with Groundwood	5,163	(33,111
Other Print., Without Groundwd.	7,029	(.....
Writing Paper, With Groundwood	168	(.....
Writing P., Without Groundwood	19,896	(.....
Other Paper	3,140	1,861
Boards	18,914	9,731

Metric tons equals 2,205 pounds.

EXPORTS OF WOOD PULP FROM NORWAY

(Metric Tons)

Classes	1932	1931
Mechanical Groundwood, Total	**609,046**	**517,902**
Bleached, Dry	3,528	2,309
Bleached, Wet	605,302	515,486
Unbleached, Wet	216	107
Chemical Pulp, Total	**267,115**	**131,933**
Sulphite, Unbleached, Dry	80,524	37,852
Sulphite, Bleached, Dry	152,410	79,539
Sulphite, Bleached or Unbleached, Wet	17,044	7,627
Sulphate, Unbleached, Dry	17,137	6,915

Metric tons equals 2,205 pounds.
Source: U. S. Dept. of Commerce.

NORWEGIAN WOOD PULP PRODUCTION

	1931	1932
	Metric tons	Metric tons
Bleached sulphite	75,633	168,951
Unbleached sulphite	55,290	111,654
Sulphate	6,755	15,359
Mechanical groundwood	349,597	413,196 (wet)

EXPORTS OF PAPER AND BOARDS FROM FINLAND

(Metric tons)

Class—	1932	1931
Paper, total	**288,692**	**276,371**
Wrapping paper, coarse brown	33,313	34,167
Wrapping paper, other	17,245	17,008
Greaseproof paper	402	473
Newsprint	200,948	190,880
Wall paper	1,133	3,336
Writing paper	2,629	2,341
Tissue paper	1,035	1,213
Cigarette paper	380	273
Other paper	31,607	26,680
Boards, total	**56,419**	**47,495**
Paper and boards, total	**345,111**	**323,866**

Metric tons equals 2,205 pounds.
Source: U. S. Dept. of Commerce.

EXPORTS OF WOOD PULP FROM SWEDEN

(Metric Tons)

Class	Twelve Months 1931	1932
Mechanical Pulp:		
Wet	457,288	378,105
Dry	37,975	31,048
Chemical Pulp:		
Sulphite, Bleached	150,915	151,121
Sulphite, Unbleached, Wet	35,120	15,191
Sulphite, Unbleached, Dry	618,586	490,369
Sulphate, Bleached	84	1,924
Sulphate, Unbleached, Wet	19,472	16,975
Sulphate, Unbleached, Dry	503,655	410,338

Amounts given in actual wet and dry weights.
Source: U. S. Dept. of Commerce.

EXPORTS OF WOOD PULP FROM FINLAND

(Metric tons)

Class—	—Twelve Months— 1932	1931
Mechanical pulp, dry weight	180,096	157,395
Mechanical pulp, wet	269,242	204,941
Mechanical pulp, dry	45,475	54,924
Chemical pulp, dry weight	756,897	628,386
Sulphite, wet	179,195	109,536
Sulphite, dry	472,404	369,421
Sulphate, wet	54,143	38,647
Sulphate, dry	167,824	184,873

Note: Wet weight convertible to dry weight by dividing by 2.
Source: U. S. Department of Commerce.

The above are figures published by the Finnish government; those compiled by the Finnish Cellulose Association show the following shipments in 1931 and 1932.

	1932	1931
Sulphite, bleached	98,944	60,619
Sulphite, easy bleaching	51,163	42,144
Sulphite, strong	435,557	316,067
Total	585,664	418,830
Sulphate	183,094	196,611
Grand total	**768,758**	**615,411**

EXPORTS OF PAPER AND BOARDS FROM SWEDEN

(Metric Tons)

Classes	1931	1932
Paper and Boards, Total	484,735	471,603
Paper, Total	442,576	425,490
Newsprint	183,111	185,428
Coated	5,430	4,342
Kraft Wrapping	115,162	102,781
Sulphite Wrapping	87,367	83,186
Other Wrapping	16,127	18,499
Greaseproof	24,445	19,253
Book and Writing Papers	10,934	12,001
Boards	42,159	46,113

Metric ton equals 2,205 pounds.
Source: U. S. Dept. of Commerce.

FINLAND

1932 Production

(Metric tons)

Mechanical groundwood	445,000
Sulphite pulp	640,000
Sulphate pulp	230,000
Paper	335,000
Boards	70,000
Total	1,720,000

Source: U. S. Dept. of Commerce.

AUSTRIAN PRODUCTION IN 1932

Austrian pulp and paper production during 1932 was consistently under that of the preceding year, according to figures compiled by the Austrian Paper and Pulp Association. Production during the two years mentioned was as follows:

	1931 Metric tons	1932 Metric tons
Paper	210,060	200,950
Boards	29,680	22,690
Chemical pulp	215,580	199,640
Mechanical pulp	96,080	83,410

FINLAND

Exports of Pulp, Paper, Board, Etc.

1930-1931-1932

		1932	1931	1930
Wood Pulp—				
Mechanical pulp (total)	Metric Tons	[1]180,096	[1]157,395	[1]157,442
Wet	Metric Tons	269,242	204,941	----
Dry	Metric Tons	45,475	54,924	----
Chemical pulp (total)	Metric Tons	[1]756,897	[1]628,386	[1]475,828
Sulphite cellulose:				
Wet	Metric Tons	179,195	109,536	(----
Dry	Metric Tons	472,404	369,421	([1]358,195
Sulphate cellulose:				
Wet	Metric Tons	54,143	38,647	(----
Dry	Metric Tons	167,824	184,873	([1]117,634
Mechanical Wood Pulp Board Paper:		56,419	47,495	46,881
(Total)	Metric Tons	288,692	276,371	259,658
Newsprint	Metric Tons	200,948	190,880	187,812
Other papers	Metric Tons	87,744	85,491	71,846
Total value of woodpulp and paper export	Finmarks	2,056,852,219	1,828,009,335	1,840,200,000
Total Value of Imports of Wood Pulp and Paper (Fmk.)		**14,000,000**	**17,100,000**	**23,600,000**

[1]Dry weight.
Source: The Finnish Paper & Timber Journal and Bank of Finland Bulletin.

GERMANY
PER CAPITA CONSUMPTION OF PAPER

Year	Lbs.	Kilograms
1925	47.5	21.6
1926	45.3	20.6
1927	58.5	26.6
1928	62.0	28.2
1929	60.1	27.7
1930	57.6	26.2
1931	51.5	23.4
1932	49.9	22.7

GERMANY
PAPER PRODUCTION BY GRADES
(Metric Tons)
2,205 Tons

Grade	1931	1932
Newsprint	492,763	401,170
Packing Paper	207,282	192,342
Printing and Writing (with ground wood)	333,998	319,925
Printing and Writing (wood free)	133,566	121,534
Boards	347,082	329,592
All Other	656,704	603,451
Total	2,171,395	1,968,014

PAPER AND BOARD PRODUCTION
(Metric Tons)

Year	Paper	Board	Total
1919	792,000	163,000	955,000
1920	1,108,000	239,000	1,347,000
1921	1,212,000	261,000	1,473,000
1922	1,582,000	383,000	1,965,000
1923	1,185,000	234,000	1,419,000
1924	1,377,000	277,000	1,654,000
1925	1,692,000	366,000	2,058,000
1926	1,668,000	329,000	1,997,000
1927	2,008,000	434,000	2,442,000
1928	2,105,000	442,000	2,547,000
1929	2,126,000	430,000	2,556,000
1930	1,969,000	405,000	2,374,000
1931	1,824,000	347,000	2,171,000
1932	1,639,000	330,000	1,969,000

Source: Wochenblatt fur Papierfabrikation.

GERMANY
CHEMICAL PULP PRODUCTION BY GRADES
(Metric Tons)

Grade	1931	1932
Unbleached Sulphite	611,723	619,848
Bleached Sulphite	285,000	287,703
Unbleached Sulphate and Straw	69,691	58,924
Total	966,414	966,475

PULP PRODUCTION
(Metric Tons)

Year	Chemical	Mechanical	Total
1913	839,000	674,000	1,513,000
1926	971,000	727,000	1,698,000
1929	1,204,000	852,000	2,056,000
1930	1,175,000	830,000	2,005,000
1931	966,000	763,000	1,729,000
1932	966,000	650,000*	1,616,000

*Estimated.

RUSSIAN PULPWOOD EXPORTS
(Quantities in Cords)

Country	1931	1930
England	88,552	155,181
Germany	489,488	848,425
Holland	127,159	120,984
Esthonia	18,600	28,940
Italy	10,870	11,423
Switzerland	480	58,951
Finland	20,847	.....
Norway	24,057	92,848
France	109,642	138,648
United States	52,290	238,417
Belgium	.....	17,685
Sweden	.....	22,348
Total	941,985	1,733,850

Source: Amtorg Trading Corp. and A. P. & P. A.

Orient

JAPAN
1931-1932 Statistics

PAPER PRODUCTION
(Short tons)

	1931	1932
Newsprint paper	257,797	271,786
Best grade printing	75,370	66,449
Ordinary printing	61,897	58,422
Wrapping paper	68,487	78,944
Writing and drawing	19,090	16,777
Art and ivory papers	6,766	6,166
Colored paper	8,384	8,441
Boards	38,196	38,776
Japanese-style papers and miscellaneous	129,305	109,897
Total	**665,292**	**655,658**
Paper Sales	664,793	707,384

PULP PRODUCED
(Short tons)

	1931	1932
Mechanical	210,125	216,308
Chemical	247,711	231,922
Total	**457,836**	**448,230**

PULP PURCHASED
(Imported—Short tons)

	1931	1932
Mechanical	4,376	3,200
Chemical	80,216	91,716
Total	**84,592**	**94,916**

RAW MATERIALS CONSUMED

	1931	1932
Pulpwood (cu. ft.)	54,123,830	54,810,450
Rags (short tons)	8,368	.....
Straw (short tons)	10,557	.....
Water paper (short tons)	24,297	.....

Source: Japanese Paper Manufacturers' Association.

WORLD NEWSPRINT IMPORTS IN 1932

Imports of newsprint into France during 1932 dropped to 84,000 metric tons compared with 112,000 in the preceding year. The two figures are not exactly comparable, however, owing to a change in classification allowing the possibility of small quantities of newsprint being placed in another category, together with certain other papers used in printing. The discrepancy in any event would be small. Sweden and Finland supplied about half of the total imports, with Germany and Norway ranking next in importance.

An import quota for newsprint paper for the year 1933 was published in the "Journal Officiel" of September 29, 1932. At the same time all importations of newsprint were subjected to the issuance of an import license. The decision also provided that for the remainder of the year 1932, import licenses would be required for the importation of newsprint, although no import quota was fixed for that period. A quota of 66,000 metric tons of newsprint was allotted for the calendar year 1933.

Newsprint imports into Chile during 1932 reached a total of 14,783 metric tons valued at approximately $708,413. Nearly one-half of the imports came from Canada, which supplied 6,122 tons. Imports from Sweden and Norway, which ranked next to Canada as sources of supply, together totaled 7,415 tons. In addition to imports, a local paper mill has been turning out newsprint paper since October. They did not probably produce more than 300 or 400 metric tons during the short time they were in operation during 1932, but are now turning out about 350 tons a month.

Brazil imported newsprint paper to the amount of 26,105 metric tons, valued at around $1,445,200. Germany, with 8,025 tons ranked first as a source of supply, followed by Finland (7,489 tons), Norway (6,095 tons) and Sweden (3,081 tons). No imports are recorded as coming from the United States.

Imports of newsprint into Colombia during 1932 totaled 4,085 metric tons, compared with 3,727 tons in the preceding year, and 3,114 tons in 1930. Newsprint paper has been one of the few items of import that come into Colombia free of duty, and this may account to some extent for the fact that imports have increased rather than declined. Of the 1932 imports, Germany supplied 64 tons, the United States 42 tons, Sweden 38 tons, and Canada 30 tons. American and Canadian newsprint is greatly preferred to the European product, but the latter retains its position in the market because of lower prices and better packing. It is reported by the trade that American manufacturers refuse to pack satisfactorily and that they lose considerable business thereby. The most important development in the market during 1932 was the increased imports from Sweden, which practically equalled the decline in imports from Germany, Canada, United States, and Norway. Belgium, the Netherlands, and the United Kingdom are showing gains and even Austria is making a strong bid to secure a share in the market. One of the principal factors accounting for Sweden's increased sales in 1932 is alleged to be the fact that its exporters are quoting prices in pounds sterling.

Imports of newsprint into Egypt during the first 10 months of 1932 totaled 4,324 metric tons as against 4,304 metric tons in the corresponding period in 1931. Leading sources of supply were Finland (1,686 tons), Sweden (1,195 tons) and Norway (581 tons).

Census of the United States Industry

PAPER

Table 1.—Summary for the Industry: 1931 and 1929

	—1931—	—1929—	Pct. of Dec.
Number of establishments	650	685	– 5.1
Wage earners (average for the year)[1]	87,683	103,320	–15.1
Wages[2]	$103,851,800	$140,398,374	–26.0
Cost of materials, fuel, and purchased electric energy[3]	$383,420,390	$574,607,978	–33.3
Products total value[3]	$684,971,197	$967,186,026	–29.2
Paper and paperboard	$563,320,889	$817,024,663	–31.1
Made for sale	$498,202,661	$715,145,798	–30.3
Made and transferred to other plants of same company	$ 65,118,228	$101,878,865	–36.1
Products other than paper and paperboard	$121,650,308	$150,161,363	–19.0
Value added by manufacture[4]	$301,550,807	$392,578,048	–23.2

[1]Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed or or about the 15th day of of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be eccepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1931 and 1929, the possibility that the prooortion of part-time employment was larger in one year than in the other should be taken into account.

[2]Manufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3]In addition, paper and paperboard to the value of $67,785,320 for 1931 and $86,276,477 for 1929 were produced and consumed in the same plants in the manufacture of converted paper products.

[4]Value of products less cost of materials, fuel, and purchased electric energy.

Table 2.—Paper and Paperboard—Production, by Class and Quantity—1931, 1930, and 1929

(A census of the paper industry is now taken annually. For the odd-numbered years the same class of data are collected as for other manufacturing industries covered by the biennial census but the canvass for the even-numbered years is restricted to the collection of condensed data on production and on paper-making machines in use.)

Class—	Quantity (tons, 2,000 pounds) 1931	1930	1929
Total	9,381,850	10,169,140	11,140,235
Newsprint, standard, in rolls and in sheets	1,203,862	1,226,086	1,409,169
Hanging paper	85,375	106,427	101,002
Catalogue paper	89,382	114,588	111,771
Book paper, uncoated	1,208,674	1,389,500	1,497,912
Cover paper	23,520	40,059	28,072
Writing paper	487,598	574,681	607,590
Wrapping paper total	1,401,667	1,580,489	1,605,783
Sulphite	199,780	[1]353,227	215,777
Kraft	867,743	865,444	[2]846,468
Other	334,144	361,818	543,538
Tissue paper	394,623	362,355	387,811
Absorbent paper	76,592	81,813	90,800
Building paper	395,359	468,730	659,178
Poster, novel, news-tablets, lining, etc.	135,924	163,696	150,649
Other paper	31,451		39,311
Paperboard, total	3,847,823	4,060,716	4,451,187
Container board	1,903,792	1,914,633	2,255,537
Folding box board	905,710	1,012,736	991,285
Set-up box board	562,176	653,177	599,665
Building board	114,054	123,589	131,969
Binders' board	32,703	47,669	64,165
Cardboard	74,102	73,491	47,233
Leatherboard	26,715	17,754	24,228
Pressboard	4,000	3,568	11,901
Other	224,571	214,099	325,204

[1]Reported as "Sulphite manilas, etc." Not comparable with figures for 1929 and 1931.
[2]Includes data for 134,234 tons of "sulphate, for bags."

Table 3.—Paper and Paperboard—Production, by Class, Kind, Quantity, and Value: 1931

Class—	Quantity (tons, 2,000 lbs.)	Value
Paper and paperboard, aggregate	9,381,850	$631,106,209
Produced for sale	6,939,706	498,202,661
Produced and transferred to other plants of same company	1,259,029	65,118,228
Produced for use in same plant	1,183,119	67,785,320
Newsprint, standard, in rolls and in sheets	1,203,862	63,686,999
Hanging paper	85,375	5,767,483
Catalogue paper	89,382	7,064,325
Poster, novel, news-tablet, lining, etc., paper	135,924	9,624,477
Book paper, total	1,208,674	120,282,799
Machine-finished, sized, and super-calendered	952,142	94,977,883
Body stock for coated paper	199,946	18,345,062
Lithograph paper	10,036	1,081,260
Offset paper	23,454	3,146,490
Text paper	1,435	244,778
Other book paper	21,661	2,487,326
Cover paper	23,520	4,371,668
Writing paper (fine), total	487,598	77,865,416
One hundred per cent rag	11,141	6,933,661
Less than 100% to 50% rag	25,494	9,769,865
Less than 50% rag	43,083	10,255,860
Sulphite bond	246,971	31,304,209
Other chemical wood-pulp writing paper	106,909	91,601,821
Wrapping paper, total	1,401,667	110,885,376
Unbleached sulphite wrapping	156,701	13,239,803
Bleached sulphite wrapping	28,473	3,070,984
Sulphite for bags	14,606	1,294,033
Kraft, total	867,743	58,714,568
For bags	346,629	22,480,058
Other	521,114	36,234,510
Bogus and screenings	25,701	1,151,299
Greaseproof	10,774	1,755,817
Glassine	37,666	6,684,742
Heavy (mill wrappers, etc.)	41,336	1,865,479
Rope, jute, etc.	33,850	5,443,834
Ground wood and chemical manila	29,664	2,276,119
Tag board, light manila board, and patterns	35,200	3,270,206
Other wrapping paper, including vegetable and other imitation parchment[1]	119,953	12,118,492
Tissue paper, total	394,623	45,041,174
High-grade	57,409	10,155,353
Manila and No. 2 white	44,950	5,306,032
Napkin	22,610	2,974,738
Toilet	150,652	14,319,971
Towel	53,521	4,679,913
Waxing	65,481	7,605,167
Absorbent paper, total	76,592	14,774,037

Blotting	9,565	1,775,628
Filter	972	274,845
Matrix	4,106	1,551,676
For vulcanized fiber	10,484	1,519,628
Other absorbent paper, including paper for parchmentizing[1]	51,465	9,652,260
Building paper, total	395,359	18,129,372
Sheathing paper	26,341	791,407
Felts	318,827	14,003,836
Asbestos-filled and asbestos paper	44,002	3,010,647
Other building paper	6,189	323,482
Other paper	31,451	4,500,750
Paperboard, total	3,847,823	149,112,333
Container board, total	1,903,792	62,155,094
Liners—		
Kraft	495,766	18,498,067
Other liners	574,391	19,979,809
Chip (plain and test)	552,016	14,828,307
Straw (for corrugated-container use)	281,619	8,848,911
Folding box board (bending), total	905,710	37,946,800
Manila-lined (all lined board)	604,460	24,476,622
Patent-coated	179,464	8,865,286
Other folding box board (including shell and unlined boards)	121,786	4,604,892
Set-up box board (nonbending), total	562,176	16,055,441
Chip and straw	260,833	7,192,992
Newsboard	216,806	5,818,053
Other (including tube, egg-case filler, pasted news, and pasted chip boards)	84,537	3,044,396
Building board, total	114,054	7,524,422
Wall board	48,183	3,072,009
Insulating board	60,307	4,086,201
Other building board	5,564	366,212
Binders' board	32,703	2,177,414
Cardboard, total	74,102	8,045,898
Bristol board	36,424	4,471,381
Other cardboard	37,678	3,574,517
Leatherboard	26,715	2,581,467
Pressboard	4,000	822,828
Other board	224,571	11,802,969

[1]Not shown separately to avoid disclosing output of individual establishments.

CENSUS OF MANUFACTURERS—1931

PULP

U. S. Department of Commerce, Bureau of Census

Table 1.—Summary for the Industry: 1931 and 1929

	1931	1929	Pct. of Decrease
Number of establishments	196	198	– 1.0
Wage earners (average for the year)[1]	20,218	24,729	–18.2
Wages[2]	$ 22,543,857	$32,679,407	–31.0
Cost of materials, fuel, and purchased electric energy[3]	$110,688,200	$148,752,729	–25.6
Products, total value[3]	$166,559,043	$238,928,279	–30.3
Wood pulp:			
Quantity (tons, 2,000 lbs.)	4,409,344	4,862,885	– 9.3
Value	$156,174,967	$223,178,096	–30.0
Other pulp:			
Quantity (tons, 2,000 lbs.)	69,849	74,350	– 6.1
Value	$ 8,759,273	$11,581,324	–24.4
Other products, value	$ 1,624,803	$4,168,859	–61.0
Value added by manufacture[3]	$ 55,870,823	$90,175,550	–38.0

[1]Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part

time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1931 and 1929, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account.

[2]Manufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3]Value of products less cost of materials, fuel, and purchased electric energy.

Table 2.—Pulpwood Consumption, by Kind and Quantity—1931, 1930, and 1929

Kind—	—Quantity (Cords)— 1931	1930	1929
Total	**6,722,766**	**7,195,524**	**7,645,011**
Spruce:			
Domestic	1,651,051	1,844,937	2,074,267
Imported	676,339	888,255	1,029,913
Yellow pine, Southern	1,294,503	1,030,273	1,036,272
Hemlock[1]	1,191,048	1,222,961	1,324,549
Balsam fir:			
Domestic	338,790	330,548	317,552
Imported	55,601	48,935	45,412
Poplar:			
Domestic	266,603	291,897	329,466
Imported	94,238	159,092	157,829
Jack pine	[2]159,273	200,970	[2]205,760
White fir, domestic	109,277	90,652	111,054
Beech, birch, and maple	69,681	68,848	76,950
Yellow poplar, domestic	73,504	107,795	129,697
Tamarack (larch)	35,433	40,054	51,835
Gum, domestic	22,440	41,825	39,685
Other woods	[3]126,942	[4]232,980	[5]153,485
Slabs and mill waste	558,043	[6]595,502	561,285

[1]Includes data for a small quantity of imported hemlock.
[2]Includes data for a small quantity of imported jack pine.
[3]Includes 142 cords of imported woods.
[4]Includes 9,390 cords of imported woods.
[5]Includes 291 cords of imported woods.
[6]Includes data for a small quantity of spent licorice root of no market value.

Table 3.—Wood-Pulp Production—Quantity, by Process and Condition: 1931, 1930, and 1929

Process and Condition—	Quantity (tons of 2,000 pounds) 1931	1930	1929
Total	**4,409,344**	**4,630,308**	**4,862,885**
Mechanical, total	1,449,240	1,560,221	1,637,653
Not steamed	1,363,726	1,414,820	1,474,415
Steamed	85,514	145,401	163,238
Sulphite, total	1,416,671	1,567,063	1,688,707
Unbleached	675,859	815,897	848,754
Bleached	740,812	751,166	839,953
Sulphate, total	1,034,291	949,513	910,888
Unbleached	980,352	882,794	(1)
Bleached	53,939	66,719	(1)
Soda, unbleached & bleached	374,054	474,230	520,729
Semi-chemical	[2]86,628	30,213	[2]40,481
Screenings, total	48,460	49,068	64,427
Mechanical	10,115	6,611	11,459
Chemical	38,345	42,457	52,968

[1]Not shown separately to avoid disclosing production of individual establishments.
[2]Includes data for a small quantity of wood pulp not covered by the items specified.

APPLICATIONS are invited for the post of CHIEF ENGINEER in a Paper Making Machinery manufacturing firm in Europe. First class experience of modern practice required as also knowledge of languages, ability to organize propaganda and secure sales. Applicant must be able to fill position of Department Chief.

Only candidates who can prove their ability to fulfill the foregoing conditions will be considered. Applications stating references, training, experience, earliest date on which candidate can take up duties, age and salary required, together with a hand-written cirriculumvitae, should be addressed to: Z. B. 1024 to Rudolf Mosse, Inc., 420 Lexington Avenue, New York City.